BASIN 6 ASSESSMENT REPORT

MISSISQUOI RIVER

OCTOBER 2024

Contents

Basin overview

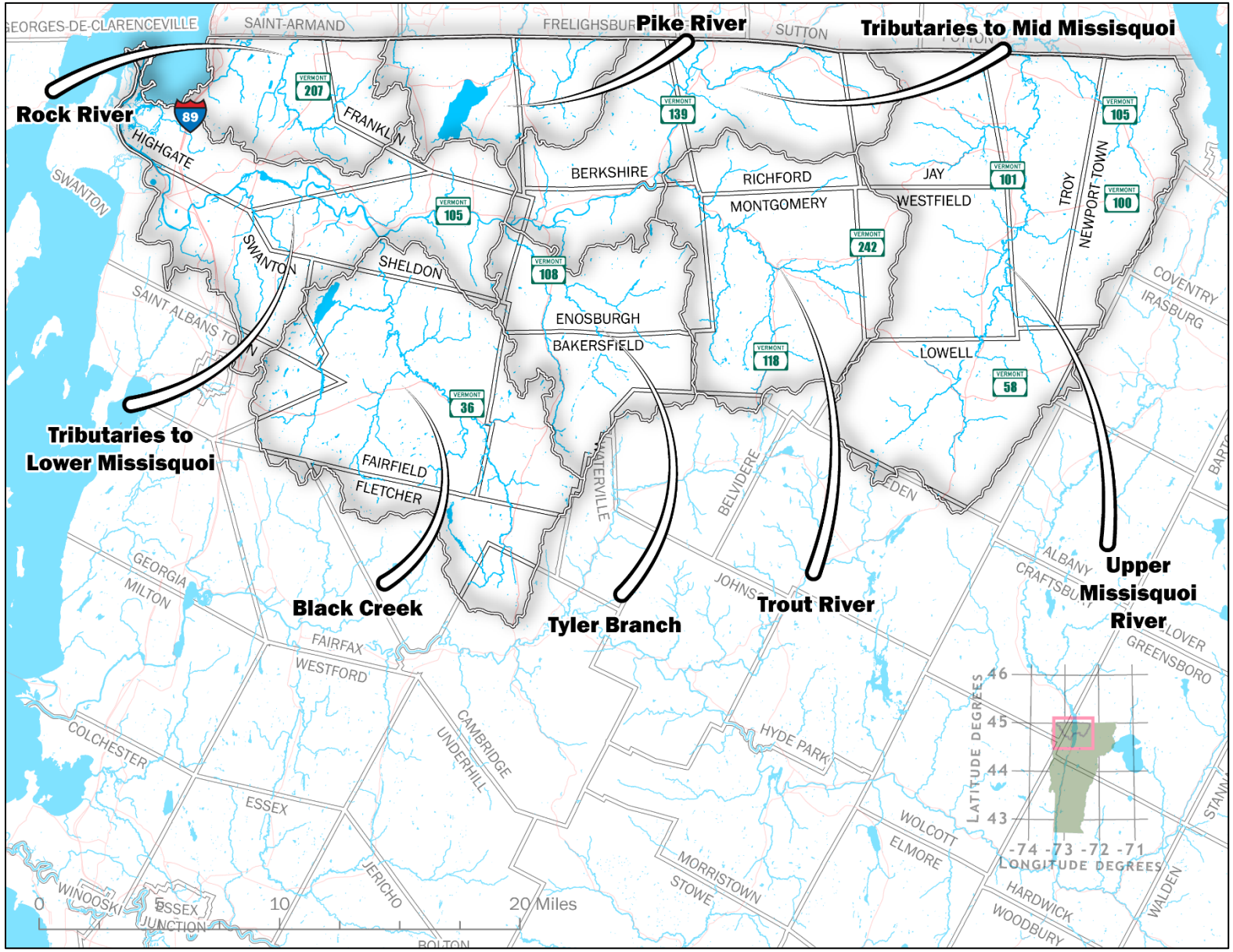

Figure 1 The 712 square mile Missisquoi basin encompasses the northeastern waters of Franklin County and the western waters of Orleans County and Canada.

Table 1 Distribution of Strahler stream orders by miles across Basin 6. This data is from the High-Resolution National Hydrography Dataset Plus (NHDPlus).

1	2	3	4	5	6	7
1022	459	247	105	75	31	28

Table 2 Distribution of lake surface area (acres) across Basin 6. Data from the High-Resolution National Hydrography Dataset Plus (NHDPlus).

Lake area (acres)			
<10	*>10<100*	*>100<500*	*>500*
26	16	2	3

Table 3 Distribution of wetland area (acres) across Basin 6. Data from the Vermont State Wetland Inventory (VSWI). Contiguous wetlands were combined to account for wetlands complexes containing multiple classes.

<21	*>21<128*	*>128<358*	*>358*
9380	207	24	8

Table 4 Summation of town level human population over time that intersects with Basin 6.

Basin-wide human population by year				
1980	*1990*	*2000*	*2010*	*2020*
21122	23590	26456	28284	28426

Table 5 . Major waters of Basin 6.

Largest River	Missisquoi River (78.2 miles)
Largest Lake or Reservoir	Lake Carmi (1415 acres)
Deepest Lake or Reservoir	Fairfield Pond (42 feet)
Largest Wetland Complex	Missisquoi National Wildlife Refuge, south side of Route 78 (2845 acres; 44.9485, -73.1823)

Land cover

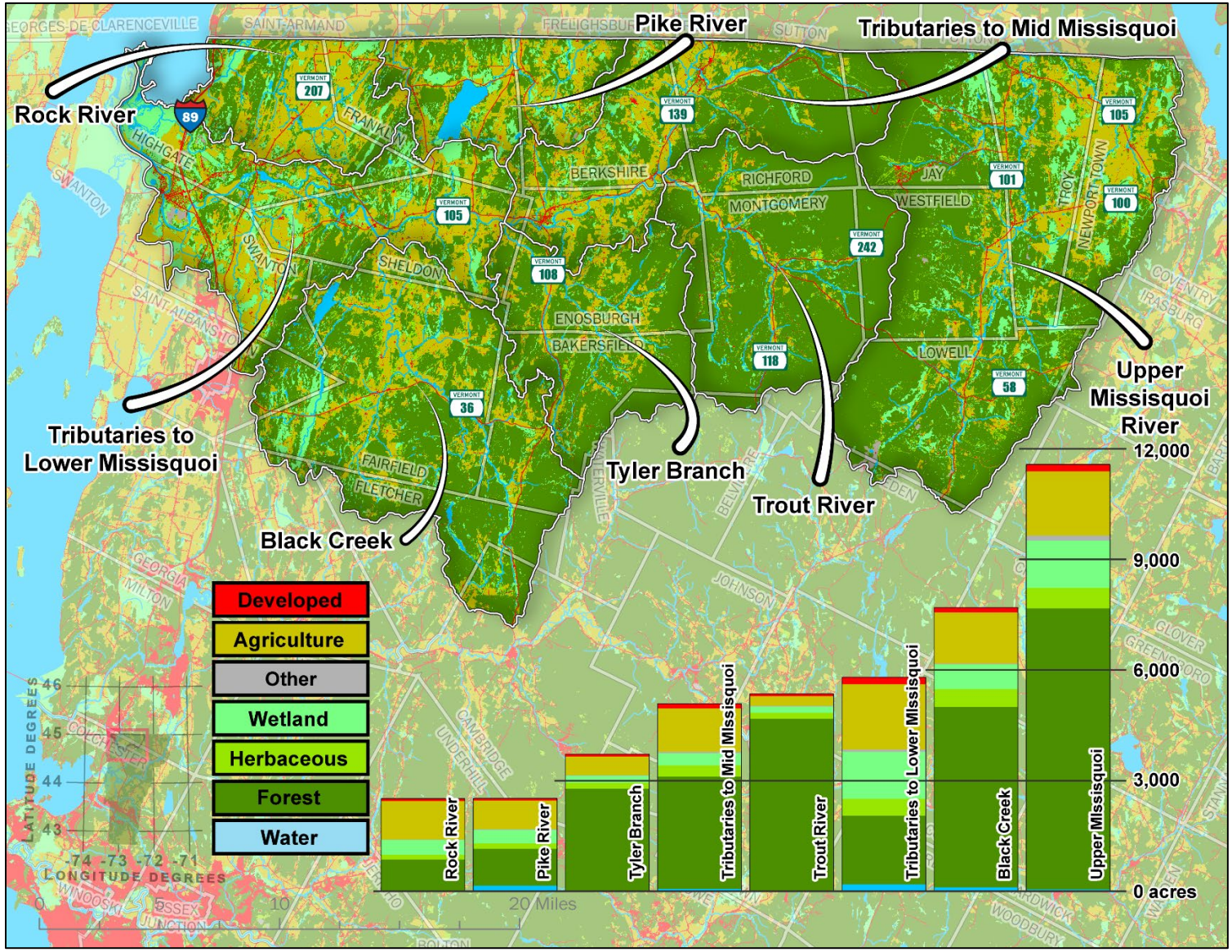

Figure 2. Landcover based on the 1-meter Lake Champlain land cover dataset produced by the University of Vermont spatial analysis laboratory and the Lake Champlain Basin program.

Table 6 The percentage of major land cover types across the Vermont WBID subwatersheds of Basin 6. Based on the 0.5-meter Vermont land cover dataset produced by the University of Vermont spatial analysis laboratory and the Lake Champlain Basin program. Common land cover types were combined, for example deciduous and coniferous are categorized as forest. The "other" category includes shrubs and barren land. Wetlands are also found throughout other cover types.

Name	Acres	Developed %	Agriculture %	Other %	Wetlands %	Herbaceous %	Forest %	Water %
Black Creek	76836	1.5	18.1	0.4	8.7	6.3	63.7	1.4
Pike River	25115	1.8	31.2	0.6	14.5	5.9	40.0	5.9
Rock River	25030	2.0	42.1	0.3	16.1	4.9	34.2	0.4
Tributaries to Lower Missisquoi	57954	3.1	30.5	1.2	21.9	7.9	32.3	3.2
Tributaries to Mid Missisquoi	50764	2.2	23.3	0.8	6.4	6.0	60.0	1.2
Trout River	53467	1.0	5.0	0.4	3.1	3.0	87.2	0.3
Tyler Branch	37103	1.4	13.8	0.3	5.0	4.3	74.7	0.5
Upper Missisquoi River	115641	1.5	15.1	1.1	11.1	4.8	65.9	0.4

Lakes and Ponds

Conditions and trends

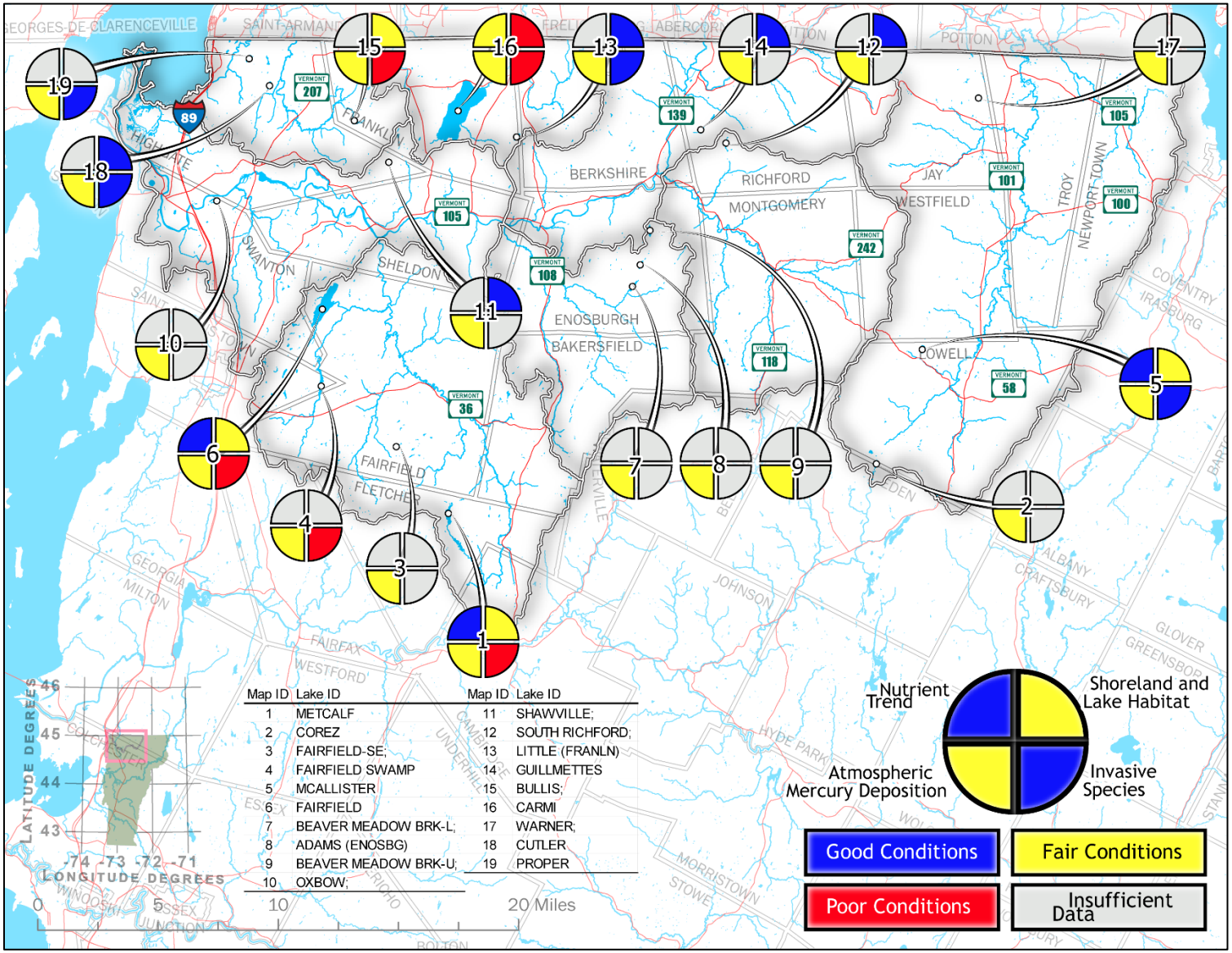

Figure 3. Lake scorecards for Basin 6. Only lakes greater than 10 acres are included. Lake IDs and additional information is provided in the table below.

The Lakes Management and Protection Program (LMPP) reports lake condition with the Vermont Inland Lake Score Card. Lake condition includes these key aspects: nutrients status and trends, aquatic invasive species, shoreland and lake habitat, and mercury pollution. For a more detailed overview, see the *score card webpage*. For more technical information, see *how lakes are scored*, and for lake specific information, navigate to the Score Card tab in this *Lake Score Card* links using the Lake IDs reported below.

LMPP provides score cards for twenty-four lakes in Basin 6. The colors are a ranked representation of condition: blue is better than yellow, yellow is better than red, and grey is insufficient data. The Map ID numbers correspond with the following table. Use the ID to navigate the *report viewer* to find more information.

The score for a lake's nutrient trend is derived primarily from data obtained through two lake monitoring programs within the Lakes and Ponds Program - the Spring Phosphorus Program and the Lay Monitoring Program; both data sets are used for analysis when available. The final nutrient trend score, which determines the color of the nutrient quadrant on the Score Card, combines the individual scores from the spring TP (total phosphorus), summer TP, summer Chlorophyll-a and summer Secchi depth. See *how lakes are scored* for more information.

Shoreland habitat is assessed using the Lakeshore Disturbance Index (LDI). A value of 0.2 or less is considered in good condition; an LDI value between 0.2 and 0.75 is considered in fair condition and an LDI value of greater than 0.75 is considered in poor condition. The Lake Wise Program offers technical assistance to shoreland property owners who want to protect or restore their shoreland habitat. Take advantage of free technical assistance through the Lake Wise Program and have your shoreland property assessed for controlling runoff and preventing erosion. The Lake Wise Program offers solutions - Best Management Practices - for managing shoreland property and making it lake-friendly for all.

The Aquatic Invasive Species (AIS) score is based on the presence of one or more invasive animal or plant species. A good score indicates there are no known invasive species present while a poor score indicates that there is at least one invasive species present, regardless of its abundance or 'nuisance' level (a fair score is not used for this criteria).

The Mercury Fish Tissue Contamination Score reflects the most recent data that VLMPP has regarding the presence of mercury (Hg) in the food web of Vermont lakes. A good score indicates low probability of Hg accumulation in fish tissue; a fair score indicates that Hg accumulation in fish tissue is likely; a poor score indicates that Hg in fish tissue exceeds EPA guidelines.

Table 7 Vermont Inland Lake Score Card table: lake-specific information with area in acres and depth in feet. Only lakes greater than 10 acres are included. AIS: Aquatic invasive species score. Mercury: mercury fish tissue contamination. Shoreland: shoreland disturbance (USEPA National Lake Assessment). Nutrient Trend: an index of trends in annual means of spring TP, summer TP, Secchi, and chlorophyl-a.

Map ID	Lake ID	Area (ac)	Max Depth (ft)	Nutrient Trend	Shoreland	AIS	Mercury
1	METCALF	84.5	25	Good	Fair	Poor	Fair
2	COREZ	12.1		Insufficient data	Insufficient data	Insufficient data	Fair
3	FAIRFIELD-SE;	14.7		Insufficient data	Insufficient data	Insufficient data	Fair
4	FAIRFIELD SWAMP	132.2	4	Insufficient data	Insufficient data	Poor	Fair
5	MCALLISTER	25.6	7	Good	Fair	Good	Fair
6	FAIRFIELD	463.3	42	Good	Fair	Poor	Fair
7	BEAVER MEADOW BRK-L;	27.7		Insufficient data	Insufficient data	Insufficient data	Fair
8	ADAMS (ENOSBG)	12.0		Insufficient data	Insufficient data	Insufficient data	Fair
9	BEAVER MEADOW BRK-U;	21.6		Insufficient data	Insufficient data	Insufficient data	Fair
10	OXBOW;	17.2		Insufficient data	Insufficient data	Insufficient data	Fair
11	SHAWVILLE;	15.9	2	Insufficient data	Good	Insufficient data	Fair
12	SOUTH RICHFORD;	11.9	33	Insufficient data	Good	Insufficient data	Fair
13	LITTLE (FRANLN)	22.2	8	Insufficient data	Good	Good	Fair
14	GUILLMETTES	11.7	13	Insufficient data	Good	Insufficient data	Fair
15	BULLIS;	12.8	2	Insufficient data	Fair	Poor	Fair
16	CARMI	1415.2	33	Fair	Poor	Poor	Fair
17	WARNER;	10.4		Insufficient data	Insufficient data	Insufficient data	Fair
18	CUTLER	23.6	3	Insufficient data	Good	Good	Fair
19	PROPER	19.5		Insufficient data	Insufficient data	Good	Fair

Lake Reclassification

To protect the waters of the State of Vermont, the Watershed Management Division (WSMD) can initiate rulemaking to reclassify surface waters to maintain a higher standard. The public may also petition the Division to request the initiation of rulemaking. The major implication of reclassification is the application of new *Water Quality Standards*[1].

Most lakes in the state have a classification of B(2) for aesthetics uses, requiring that the lake maintains a total phosphorus criteria of below 18 ug/l. Reclassification to A(1) for aesthetics uses would lower the criteria to 12 ug/l. To access data for the lakes below, navigate the *report viewer* using the Lake ID.

No lakes in basin 6 meet reclassification criteria.

Impaired Lakes

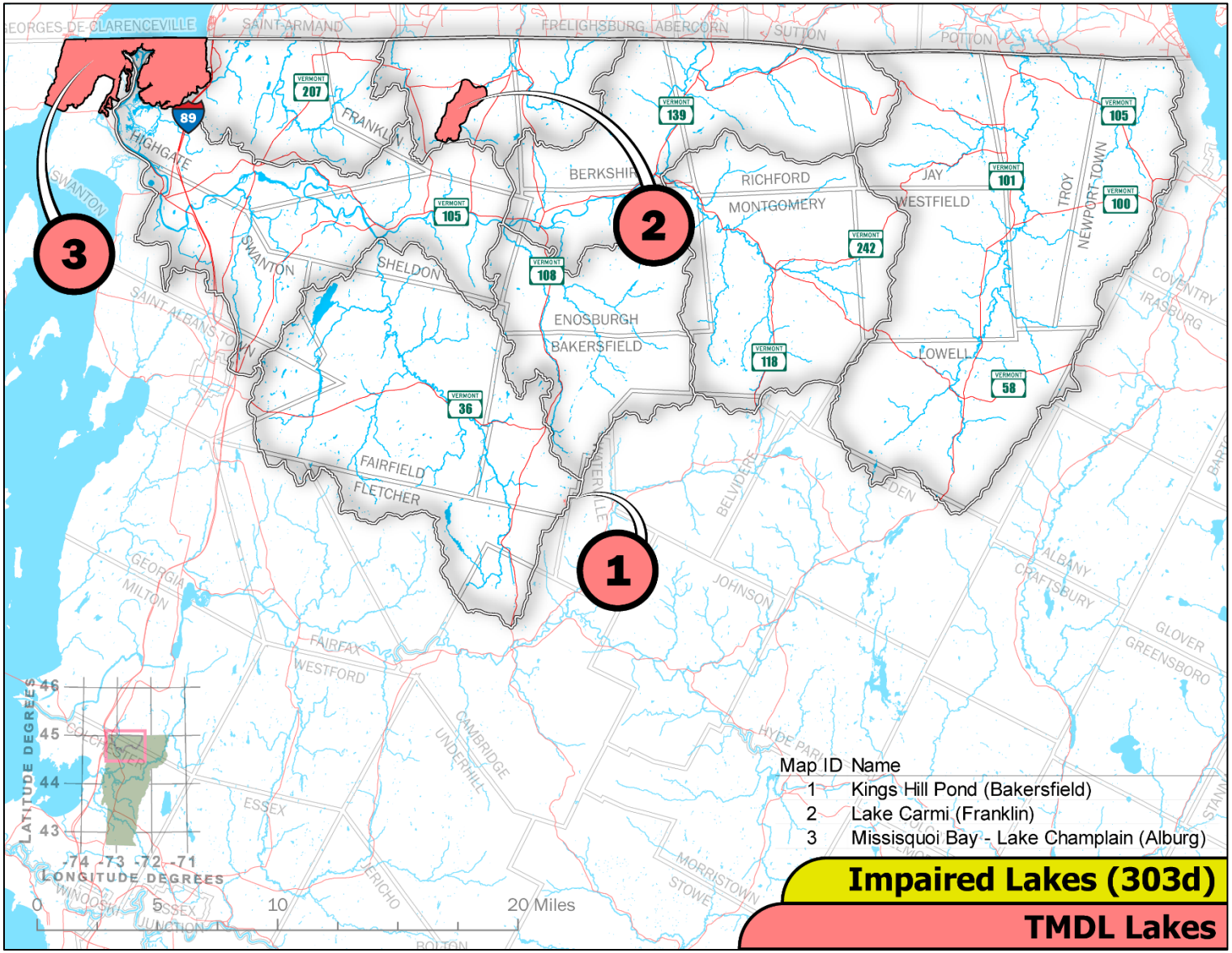

Figure 4 Map of impaired lakes across Basin 6 through 2024. Salmon color represents lakes that are on Part D of the Priority Waters List and have an approved Total Maximum Daily Load (TMDL).

Restoring waters is one of the priorities of the *Watershed Management Division's Strategic Management Plan*. WSMD begins the process of restoring Vermont surface waters by listing waters not in compliance with the water quality standards on a biennial basis. Waters are added and removed based on whether they meet *water quality standards* through a process defined in the Vermont *Surface Water Assessment and Listing Methodology*[1]. Adding waters to these lists prioritizes them for fund allocation, remediation, and monitoring. Fifteen sections of Lake Champlain are impaired and listed in Table 8.

Table 8 List of impaired lakes across Basin 6. Map IDs correspond to the map above. Part A= impaired and needs a TMDL, Part B=impaired with alternative restoration plan in place, and Part D=impaired with an EPA approved TMDL.

Map ID	Name	Problem	Pollutant	Part
1	Kings Hill Pond (Bakersfield)	Atmospheric deposition: extremely sensitive to acidification; episodic acidification	PH	D
2	Lake Carmi (Franklin)	Algae blooms	PHOSPHORUS	D
3	Missisquoi Bay - Lake Champlain (Alburg)	Elevated levels of mercury in walleye	MERCURY IN FISH TISSUE, PHOSPHORUS	D

Altered Lakes

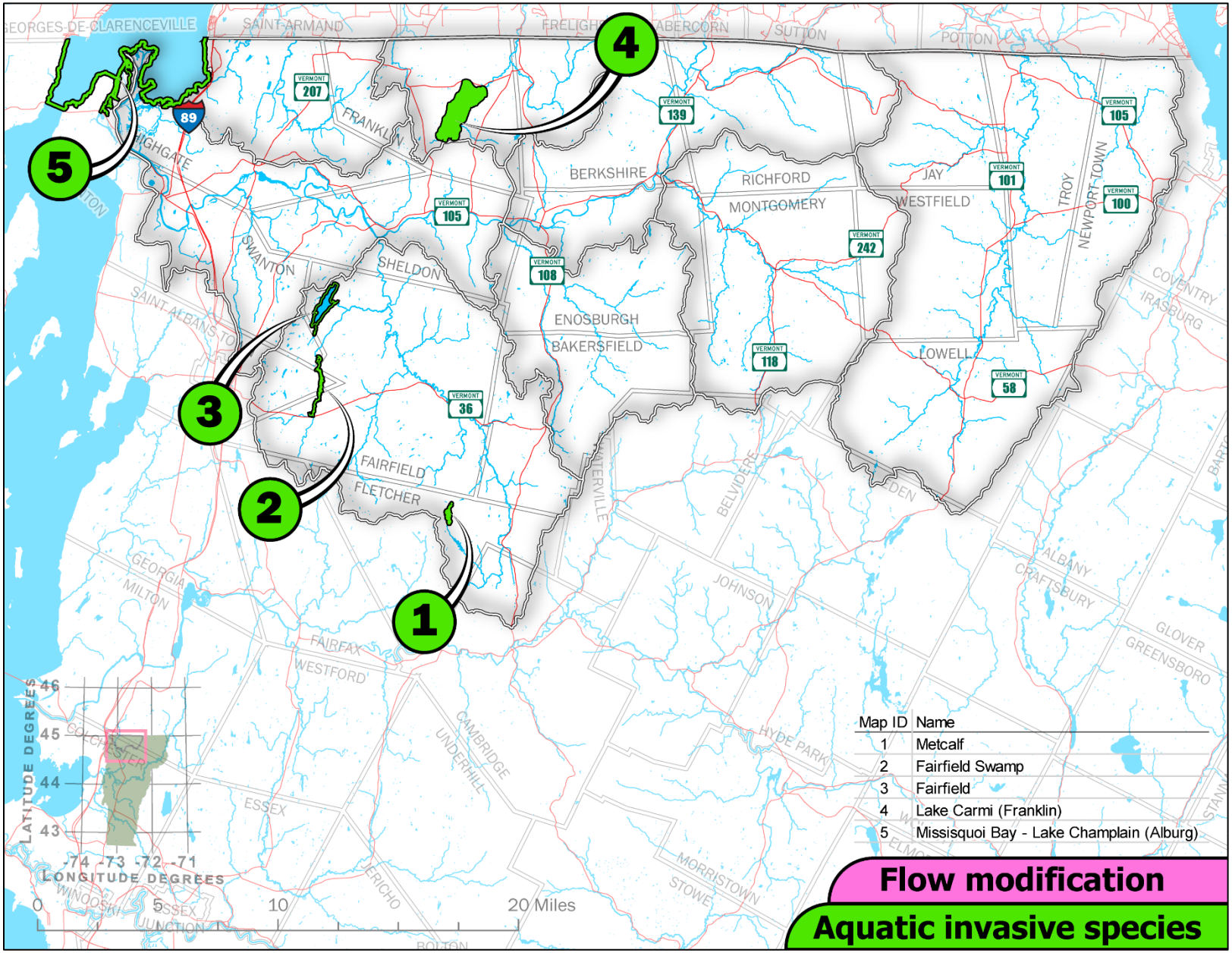

Figure 5 Map of altered lakes for Basin 6. Lakes in green are altered by aquatic invasive species.

Lakes are assessed as Altered when aquatic habitat and/or other designated uses are not supported due to the extent of invasive aquatic species, or hydrologic factors such as a lack of flow, water level or flow fluctuations, or some other modified hydrologic condition. These waters are listed on the Priority Waters List in Parts E (invasive species) and F (flow) respectively. For Parts E, Eurasian water milfoil (EWM), zebra mussels (ZM) are indicated in Table 9.

Table 9 Altered lakes in Basin 6.

Map ID	Name	Problem	Status
1	Metcalf	Locally abundant EWM growth.	No active management.
2	Fairfield Swamp	Locally abundant EWM growth.	No active management.
3	Fairfield	Locally abundant EWM growth.	Ongoing management plan that includes DOSH, benthic barriers, and hand-pulling.
4	Lake Carmi (Franklin)	Locally abundant EWM growth.	Ongoing management plan that includes mechanical harvesting efforts.
5	Missisquoi Bay - Lake Champlain (Alburg)	EWM, VLM, ZM, and WC infestation.	Active hand-pulling efforts for water chestnut. ZM are ubiquitous.

Phosphorus Trends in Lakes

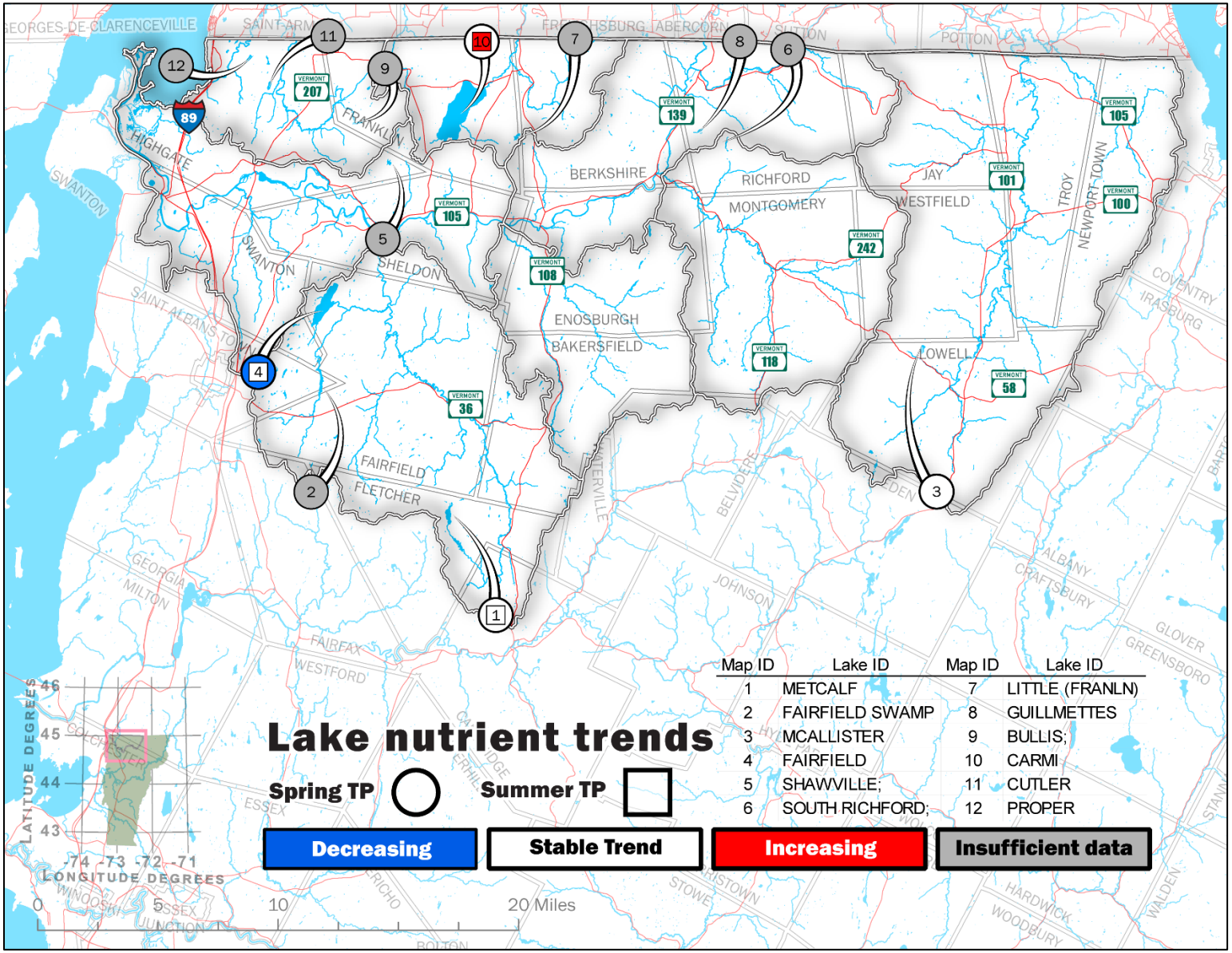

Figure 6 Total phosphorus trends for lakes in Basin 6. Note that trends can be for either spring or summer data or for both.

The WSMD conducts long-term monitoring of surface waters to identify increasing, stable, and decreasing trends of the most relevant water quality parameters in the Vermont Water Quality Standards. Modeling water quality trends before a surface water becomes impaired or altered can lead to more effective and efficient actions to reduce stressors to these waters. For more information on how trends in lakes are identified, see the nutrient trend section of the *Lake Score Card Document*.

While the Lake Score Card identifies trends for multiple parameters of lake health, Lakes with sufficient data to identify a trend in total phosphorus concentrations are shown on the above map. Trends are categorized into three groups: Increasing (models with p-values <0.05 and positive coefficients), stable (models with p-values > 0.05) and decreasing (models with p-values <0.05 and negative coefficients). Use the Lake ID in Table 10 to find more information in the *report viewer*.

Table 10 List of lakes with information on modeled trends in summer or spring total phosphorus. Map IDs correspond with the map above. (+) increasing TP trends, (=) stable TP trends, and (-) negative TP trends. Insufficient data are lakes with data but require more to model a trend.

Map ID	Lake ID	Summer	Spring
1	METCALF	Stable	Stable
2	FAIRFIELD SWAMP	No data	Insufficient data
3	MCALLISTER	No data	Stable
4	FAIRFIELD	Stable	-
5	SHAWVILLE;	No data	Insufficient data
6	SOUTH RICHFORD;	No data	Insufficient data
7	LITTLE (FRANLN)	No data	Insufficient data
8	GUILLMETTES	No data	Insufficient data
9	BULLIS;	No data	Insufficient data
10	CARMI	+	Stable
11	CUTLER	No data	Insufficient data
12	PROPER	No data	Insufficient data

Lakes in need of further assessment

In the Lake Score Card section above, there are numerous lakes that have insufficient data. For these lakes, impervious cover and agricultural land uses information is shown below to help watershed evaluation because these land cover / use types tend to export more pollutants than other land cover/use types. Use the Lake ID in the table below to find more information in the report viewer. The Watershed Disturbance Score is derived from a landscape development intensity index (LDI) developed by Brown and Vivas (2005)[1]. The LDI is a measure of human-induced alterations to the biological, chemical, and physical processes of a watershed's lands that impact the receiving water, in this case a lake.

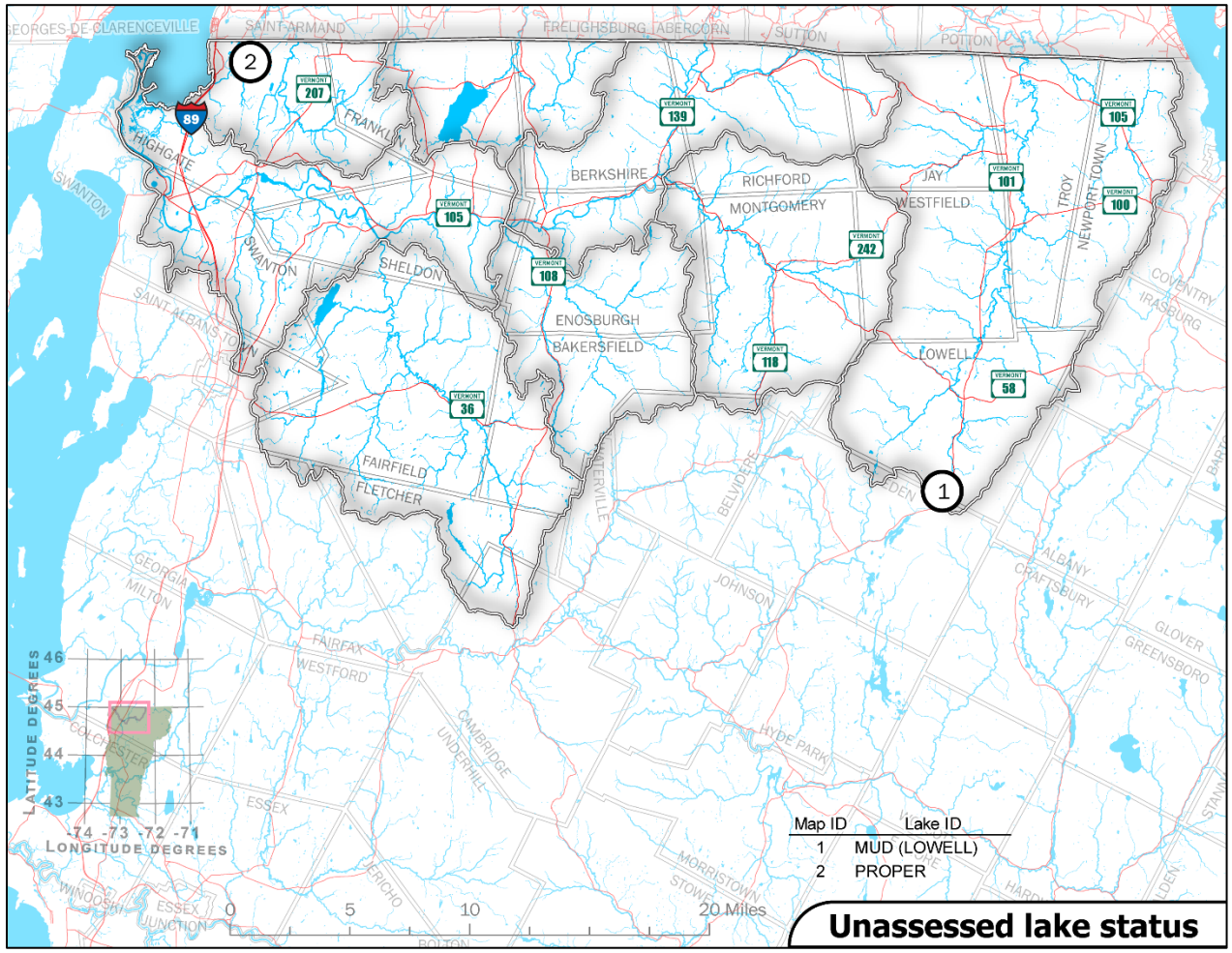

Figure 7 Lakes with insufficient data to assess water quality status.

[1] Brown, M. T., & Vivas, M. B. (2005). Landscape development intensity index. Environmental monitoring and assessment, 101, 289-309.

Table 11. Landcover of watersheds of lakes with insufficient data to determine water quality status.

			Acres		Percent						
Map ID	Lake ID	Watershed Disturbance	Lake	Watershed	Developed	Agriculture	Other	Wetlands	Herbaceous	Forest	Water
1	MUD (LOWELL)	Insufficient data	2.7	14.5	0	0	0	0	4.0	75.3	20.6
2	PROPER	Fair	19.5	174.0	0.9	7.2	0.2	17.8	3.8	59.5	10.6

Rivers

Conditions and trends

Physical condition

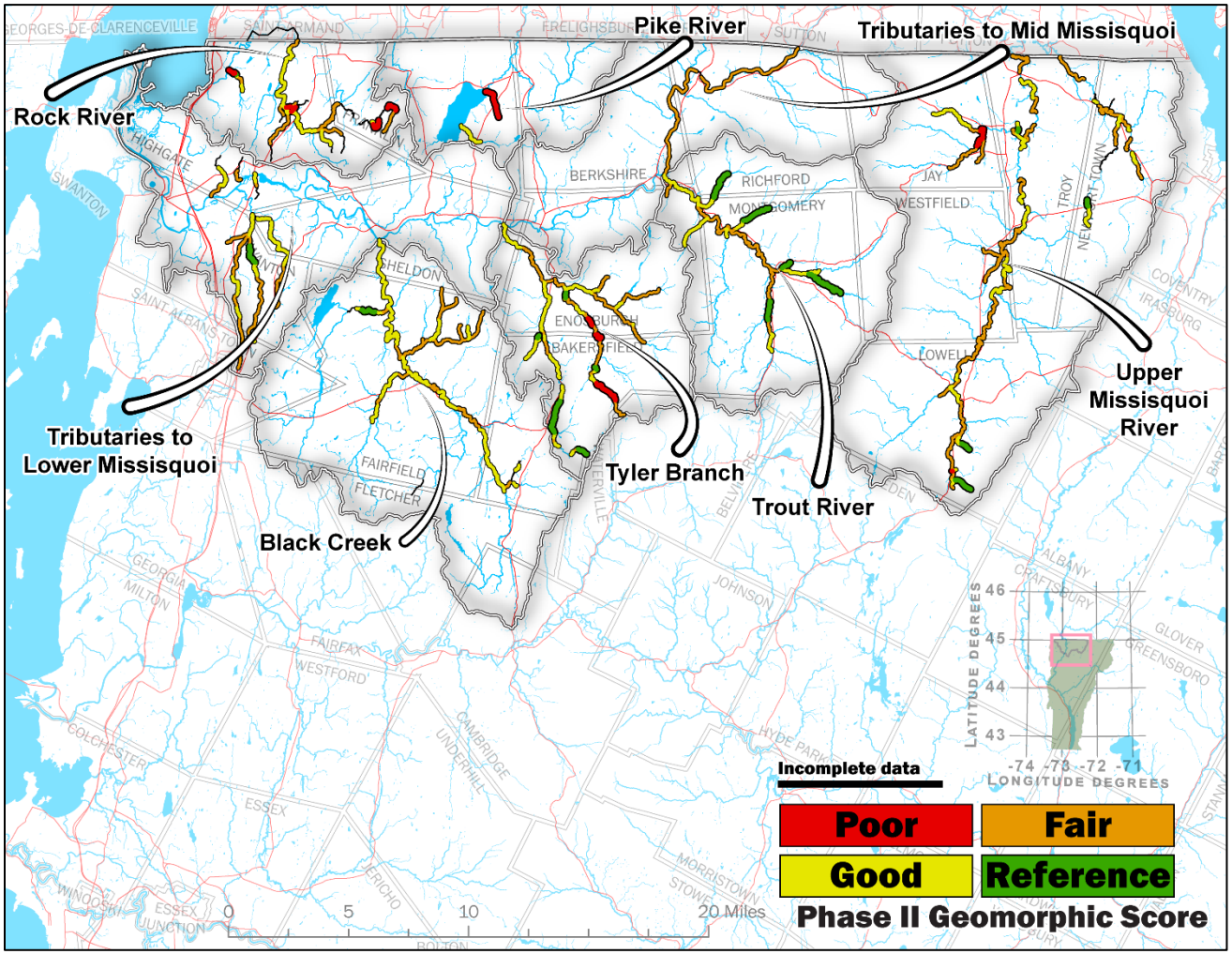

Figure 8 Map of rivers in Basin 6, with Phase II geomorphic condition scores through 2023. Poor rivers have extreme departure from reference condition, fair rivers have major departure, and good rivers have minor departure. Reference rivers have no departure.

Within the WSMD Rivers Program, two sections conduct assessments of Vermont's rivers and streams. The Biomonitoring Section collects data and assesses the biological and chemical condition of rivers, and the Stream Geomorphic Assessment Section collects data and assesses the physical condition of rivers.

Fluvial geomorphology is a subdiscipline of geomorphology that investigates how flowing water shapes and modifies Earth's surface through erosional and depositional processes. The Rivers Program conducts a three-phase approach to assess the physical condition of rivers in the State of Vermont. Phase 1 is a watershed assessment. Phase 2 is a rapid field stream assessment, and Phase 3 is a survey assessment. Figures 7- 9 give the overall Phase 2 geomorphic condition score of rivers in Basin 6. Figures displayed here are based on Phase 2 data.

The Stream Geomorphic Assessment (SGA) can be used to problem solve and set priorities for river corridor conservation and restoration strategies at a watershed scale because it allows you to ascertain how one reach may be affecting the condition of another. In Phase 2 SGA direct observations are used to evaluate stream geomorphic condition and different channel adjustment processes in each reach. In the Phase 2 SGA, the geomorphic stream condition is largely a function of the type and degree to which the stream has departed from its reference condition and the type and magnitude of channel adjustments that are happening in response to the channel and floodplain modifications that have been documented at assessed reaches in the watershed.

For more information on these type of assessments see the River's Assessment *webpage*. To learn more about the rivers and streams with Phase 1 and Phase 2 assessments in Basin 6, final reports for each project can be found at: *https://anrweb.vt.gov/DEC/SGA/finalReports.aspx*.

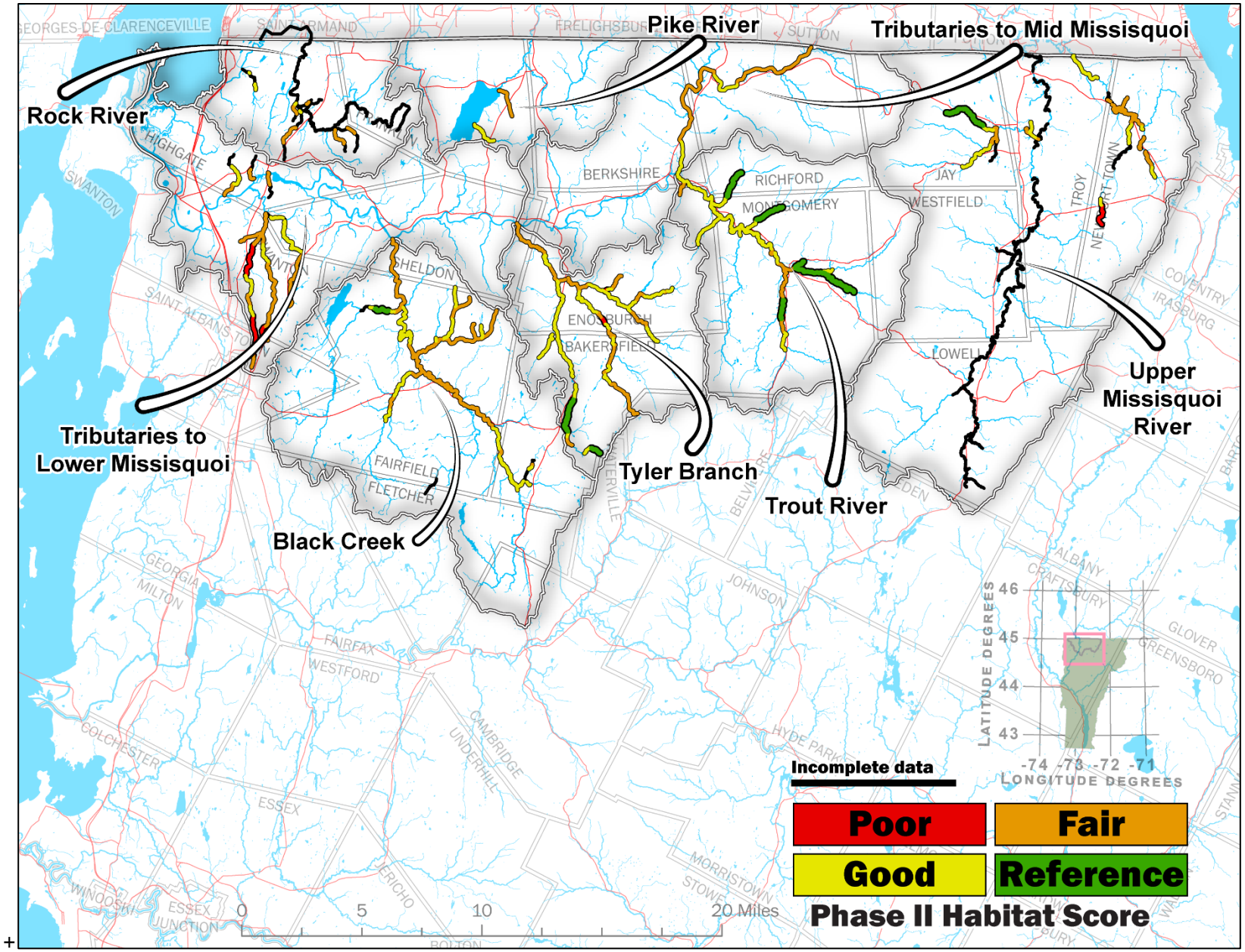

Figure 9 Map of rivers in Basin 6 Phase II habitat condition ratings through 2023. Low number ratings have extreme departure from reference conditions. High number ratings have non-significant departure from reference conditions.

The Rapid Habitat Assessment evaluates the physical components of a channel bed, banks, and riparian vegetation and how they may affect aquatic life. The Habitat condition ratings can be used to identify high quality habitat and to red-flag areas of degraded physical habitat. It is also useful to examine habitat condition ratings at a watershed scale and compare these ratings with Phase 1 and Phase 2 impact rating data to determine potential reasons for habitat degradation, and to understand habitat quality and availability throughout the watershed. Looking closely at the physical processes and the resulting physical conditions that determine aquatic habitat, and thus the biota that inhabit it, and by comparing healthy systems to unhealthy systems, a better understanding of how fluvial processes impact aquatic habitat and biota can be determined. For information on habitat assessments, see the rapid habit assessment section in the SGA handbook: https://dec.vermont.gov/sites/dec/files/wsm/rivers/docs/rv_SGA_Phase2_Protocol.pdf#page=69.

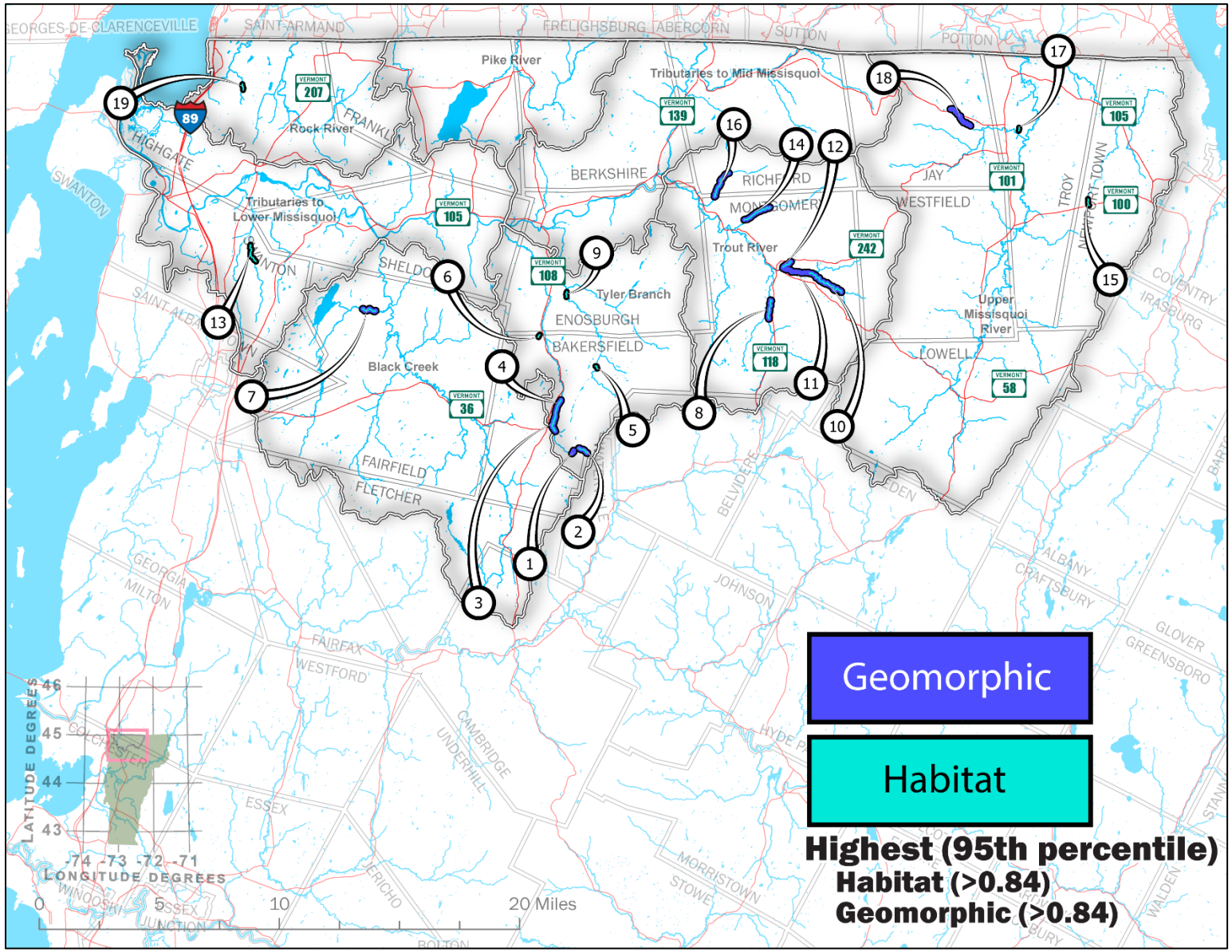

Figure 10. Map of the 95th percentile (highest) habitat and geomorphic condition scores (Basin 6). Map IDs correspond to the table below. Using this percentile approach identifies the reaches with the best geomorphic and habitat condition relative to conditions across the basin. Each is scored separately but overlap does occur.

Table 12 The highest 5th percentile habitat and geomorphic condition scores. Map IDs correspond to the map above and the Assessment link hyperlinks to more information on the reach.

Map ID	SGAT_ID	Name	Geomorphic	Habitat	Assessment	Latitude	Longitude
1	55_T1.15A	The Branch			Link	-72.7795	44.7669
2	55_T1.15C	The Branch			Link	-72.7706	44.7683
3	55_T1.12-	The Branch			Link	-72.7958	44.7854
4	55_T1.11-	The Branch			Link	-72.7916	44.7959
5	55_T2S1.03A	Bogue Branch			Link	-72.7597	44.8182
6	55_T1S4.02A	Beaver Meadow Brook			Link	-72.8088	44.8370
7	56_T2.02A	Dead Creek			Link	-72.9536	44.8521
8	57_T4.02-	South Branch Trout River			Link	-72.6133	44.8534
9	55_T2.01B	Bogue Branch			Link	-72.7859	44.8620
10	57_T7.01-	Wade Brook			Link	-72.5651	44.8692
11	57_M05-	Trout River			Link	-72.5911	44.8760
12	57_T5.01-	Hannah Clark Brook			Link	-72.5983	44.8803
13	28_M4T2.02-	Unnamed Tributary 6 to Hungerford Brook			Link	-73.0534	44.8852
14	57_T3.02-	Black Falls Brook			Link	-72.6239	44.9117
15	91_M4S4.06A	Unnamed-4 to M04			Link	-72.3430	44.9178
16	58_T1.02-	Alder Brook			Link	-72.6554	44.9289
17	90_R28T1.3S2.01B	Unnamed Trib-1 to Jay Branch			Link	-72.4015	44.9621
18	90_R28T1.5S2.01C	Crook Brook			Link	-72.4515	44.9692
19	54_M1S1.03B	Saxe Brook			Link	-73.0610	44.9861

Physical condition - restoration

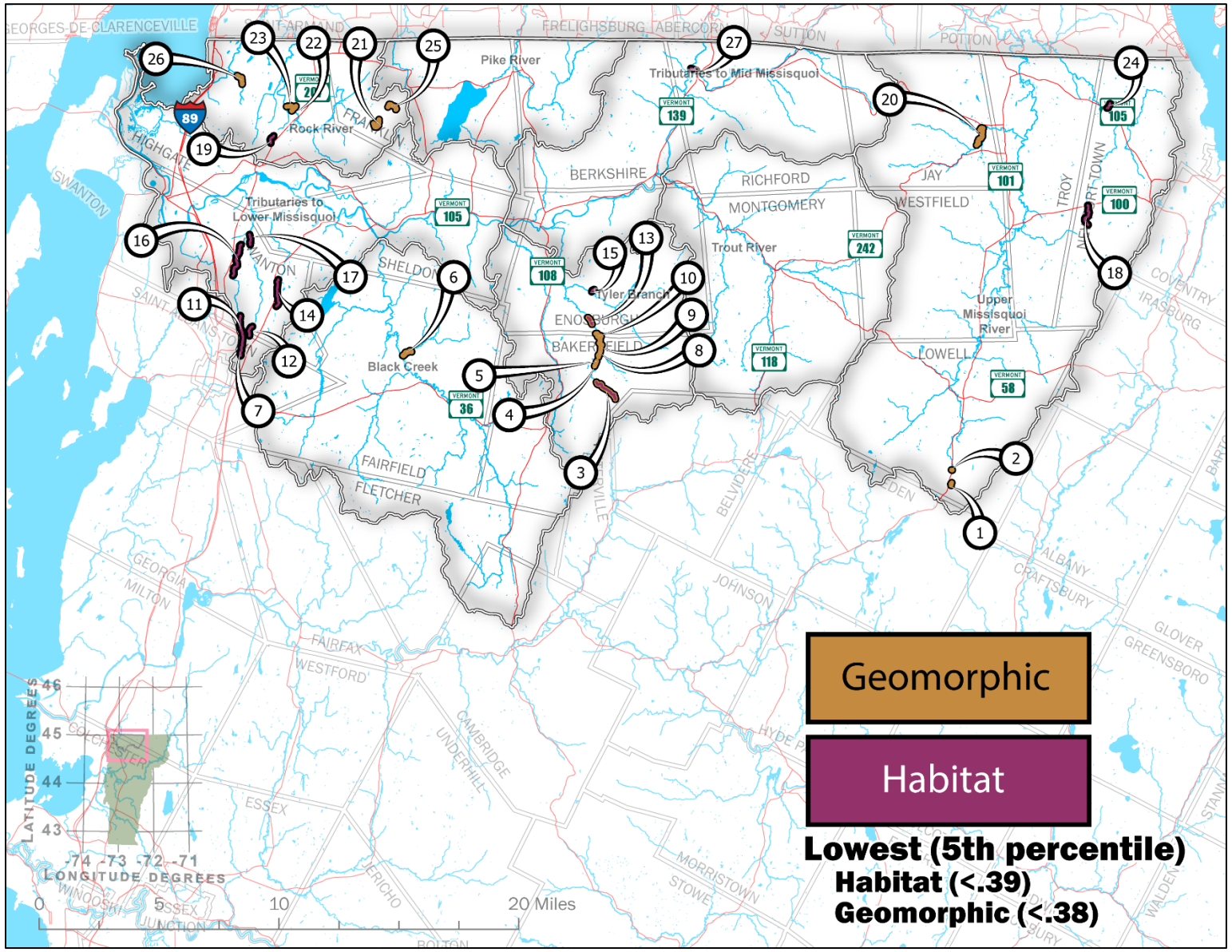

Figure 11 Map of the lowest 5th percentile habitat and geomorphic condition scores (Basin 6). Map IDs correspond to the table below.

Table 13. The lowest 5th percentile habitat and geomorphic condition scores. Map IDs correspond to the map above and the Assessment link hyperlinks to more information on the reach.

Map ID	SGAT_ID	Name	Geomorphic	Habitat	Assessment	Longitude	Latitude
1	90_R48D	East Branch Missisquoi River			Link	44.7480	-72.4585
2	90_R47S2.01A	Unnamed Tributary 6 to Hungerford Brook			Link	44.7564	-72.4576
3	55_T2S1.04C	Ross Brook			Link	44.8045	-72.7503
4	55_T2S1.02B	Bogue Branch			Link	44.8202	-72.7598
5	55_T2S1.01-	Bogue Branch			Link	44.8259	-72.7566
6	56_T3.01-	Wanzer Brook			Link	44.8267	-72.9202
7	28_M09A	Hungerford Brook			Link	44.8266	-73.0609
8	55_T2.05-	Bogue Branch			Link	44.8302	-72.7558
9	55_T2.04B	Bogue Branch			Link	44.8338	-72.7562
10	55_T2.04A	Bogue Branch			Link	44.8370	-72.7571
11	28_M08B	Hungerford Brook			Link	44.8391	-73.0607
12	28_M4T2.04D	Hungerford Trib			Link	44.8393	-73.0542
13	55_T2.03A	Bogue Branch			Link	44.8462	-72.7645
14	28_M3T1.04B	Hungerford Brook Trib 4			Link	44.8617	-73.0305
15	55_T4.01A	Tyler Branch			Link	44.8646	-72.7626
16	28_M06-	Hungerford Brook			Link	44.8814	-73.0654
17	28_M4T2.01-	Unnamed Tributary 6 to Hungerford Brook			Link	44.8941	-73.0533
18	91_M4S4.06B	Mud Creek Trib 10			Link	44.9094	-72.3418
19	54_M5S4.01E	Rock River Trib			Link	44.9549	-73.0370
20	90_R28T1.05A	Jay Branch			Link	44.9571	-72.4323
21	54_M09D	Rock River			Link	44.9640	-72.9453
22	54_M5S5.01A	Unnamed-5 to Rock-M05			Link	44.9732	-73.0175
23	54_M5S3.01A	Rock River			Link	44.9746	-73.0215
24	91_M4S3.01A	Unnamed-3 to M04			Link	44.9757	-72.3239
25	54_M09F	Rock River			Link	44.9753	-72.9332
26	54_M1S1.03A	Saxe Brook			Link	44.9907	-73.0619
27	39_R18A	Missisquoi River			Link	44.9981	-72.6777

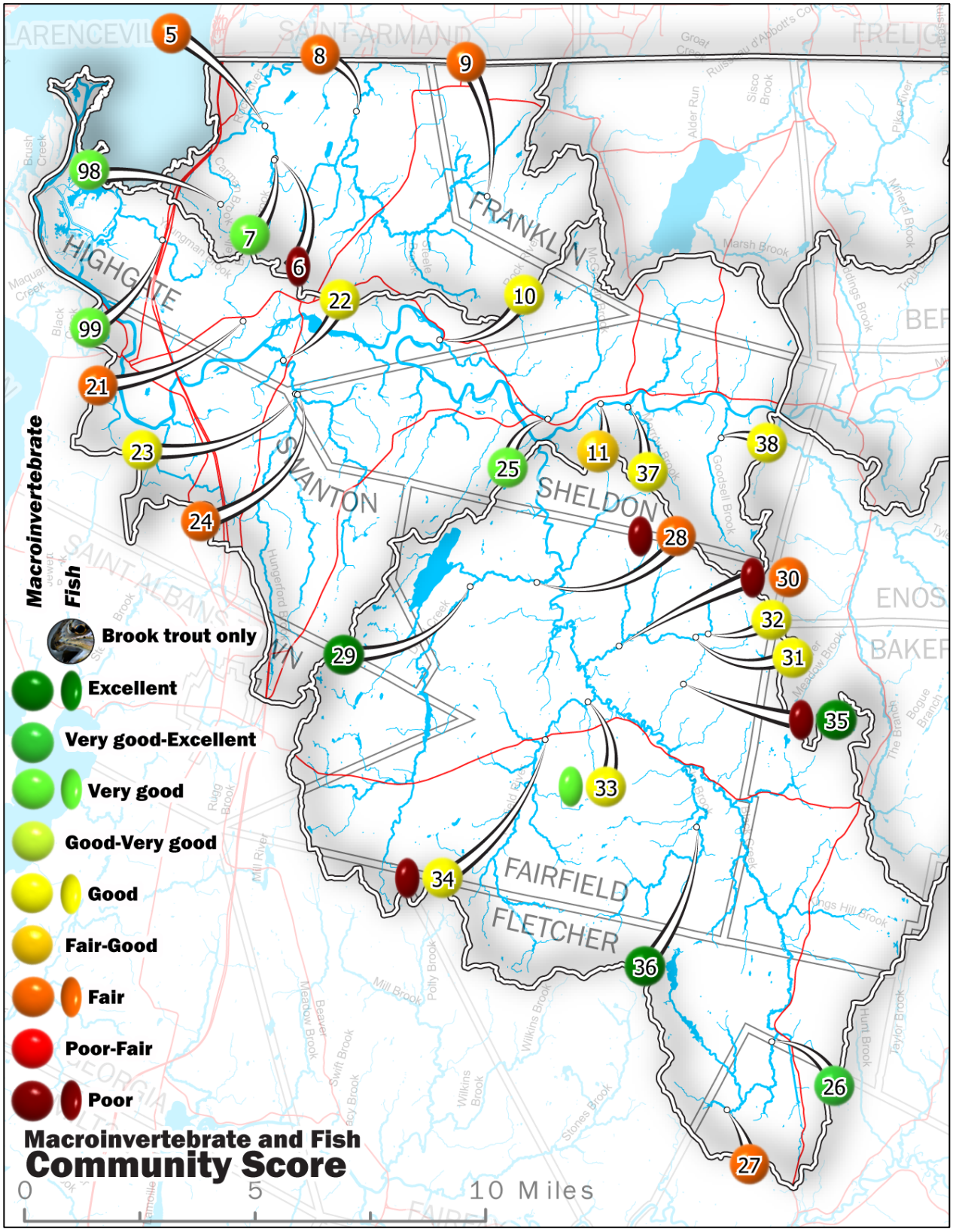

Figure 12. Map of the most recent fish and macroinvertebrate community assessments over last 10 years (2013 - 2023) for sites in Basin 6, west section (see below). Poor scores represent the greatest deviation from reference conditions and Excellent scores represent non-significant deviation from reference conditions. We do not have criteria for assessing Brook Trout Only streams (where Brook Trout are the only observed taxa). Map IDs correspond with the table below.

The Biomonitoring Section conducts biological assessments of wadeable rivers and streams. For more information on these assessments see the WSMD Biomonitoring Section *webpage*[1]. The assessments include sampling of macroinvertebrate and fish communities to determine Aquatic Biota use support, as well as the collection of water quality and habitat data to better understand the condition of the biological communities. Aquatic biota health in streams is one of the primary areas of study by the WSMD with data used to determine a river's ability to fully support aquatic biota. Brook Trout (BKT) only streams are defined as streams that contain only Brook Trout, which cannot be assessed using the VDEC Fish Indices of Biological Integrity (IBI), which require two or more native species to score.

Table 14 Macroinvertebrate (bug) and fish community assessment matrix for the streams of Basin 6, south section. Blank = no data, BKT = streams with a robust only Brook Trout recorded brook trout community

Unable to sample or assess (U)	Poor (P)	Poor-fair (PF)	Fair (F)	Fair-good (Fg)	Good (G)	Good-Very good (GVg)	Very good (Vg)	Very good-excellent (VgE)	Excellent (E)

Name	Map ID		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Saxe Brook, 0.4	5	Bug				F							
Saxe Brook, 0.9	6	Fish				U							P
Saxe Brook, 1.0	7	Bug	Vg			F		Vg					
Rock River, 6.1	8	Bug						F					
Rock River, 14.9	9	Bug	F										
Kelly Brook, 1.3	21	Bug											F
Hungerford Brook, 0.8	22	Bug											G
Hungerford Brook, 2.3	23	Bug						F	G				
Hungerford Trib 4, 0.1	24	Bug						F	F				
McGowan Brook, 1.0	25	Bug	VgE										Vg
McGowan Brook, 1.0	25	Fish											U
Black Creek, 24.6	26	Bug										VgE	
Black Creek, 24.6	26	Fish										U	
Black Creek, 27.3	27	Bug						F					

Name	Map ID		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Dead Creek, 0.9	28	Bug						F	F				F
Dead Creek, 0.9	28	Fish						P					P
Dead Creek, 2.8	29	Bug											E
Wanzer Brook, 1.4	30	Bug						F					
Wanzer Brook, 1.4	30	Fish						P					
Wanzer Brook, 3.6	31	Bug	G										
Wanzer Brook, 4.0	32	Bug	G										
Fairfield River, 0.2	33	Bug	G										
Fairfield River, 0.2	33	Fish	Vg										
Fairfield River, 1.9	34	Bug						G					
Fairfield River, 1.9	34	Fish						P					
Chester Brook, 1.4	35	Bug	E										
Chester Brook, 1.4	35	Fish	P										
Elm Brook, 2.2	36	Bug						E					
Morrow Brook, 0.1	37	Bug						F	F				G
Goodsell Brook, 0.9	38	Bug	G										
Carman Brook, 1.9	98	Bug						Vg					
Youngman Brook, 1.5	99	Bug						U					Vg
Youngman Brook, 1.5	99	Fish											U

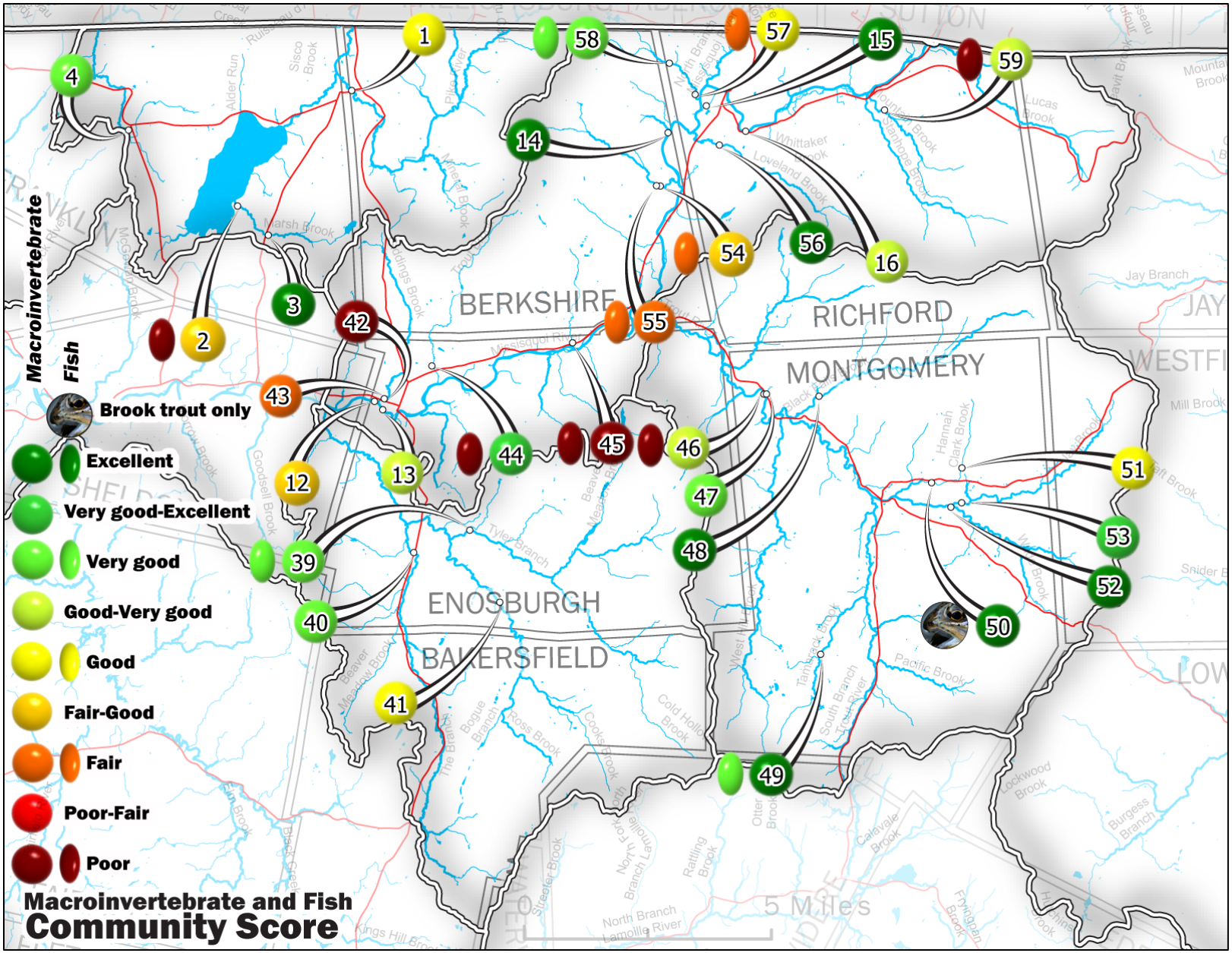

Figure 13 Map of the most recent fish and macroinvertebrate community assessments over the last 10 years (2013-2023) for Basin 6 mid watershed. Poor scores represent the greatest deviation from reference conditions and Excellent scores represent non-significant deviation from reference conditions. We do not have criteria for assessing Brook Trout Only streams (where Brook Trout are the only observed taxa). Map IDs correspond with the table below.

Table 15 Macroinvertebrate (bug) and fish community matrix for the watersheds of Basin 6, middle section. Blank = no data, BKT = streams with only Brook Trout recorded.

Unable to sample or assess (U)	Poor (P)	Poor-fair (PF)	Fair (F)	Fair-good (FG)	Good (G)	Good-Very good (GVg)	Very good (Vg)	Very good-excellent (VgE)	Excellent (E)

Name	Map ID		2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Pike River, 2.0	1	Bug						G					
Marsh Brook, 0.2	2	Bug											FG
Marsh Brook, 0.2	2	Fish											P
Marsh Brook, 1.2	3	Bug	E										
Groat Brook, 3.9	4	Bug	Vg										
Missisquoi River, 33.0	12	Bug					FG						
Missisquoi River, 33.3	13	Bug	GVg								GVg		
Missisquoi River, 45.3	14	Bug	F				GVg					E	
Missisquoi River Braid, 46.9	15	Bug										E	
Missisquoi River, 48.3	16	Bug	GVg										
Tyler Branch, 5.3	39	Bug						Vg		Vg			
Tyler Branch, 5.3	39	Fish								Vg			
The Branch, 0.6	40	Bug						Vg					
Bogue Branch, 2.2	41	Bug						G					
Giddings Brook, 0.1	42	Bug						PF	P				
Giddings Brook, 0.2	43	Bug											F
Trout Brook, 0.5	44	Bug						VgE					
Trout Brook, 0.5	44	Fish						P					
Samsonville Brook, 0.2	45	Bug						P					
Samsonville Brook, 0.2	45	Fish						P					
Trout River, 3.9	46	Bug						GVg					
Trout River Trib #8, 0.1	47	Bug											U
Trout River Trib #8, 0.1	47	Fish											P
Black Falls Brook, 0.9	48	Bug						E					
Tamarack Brook, 1.6	49	Bug	E										
Tamarack Brook, 1.6	49	Fish	Vg										
Hannah Clark Brook, 0.9	50	Bug							E				

Hannah Clark Brook, 0.9	50	Fish						BKT
Hannah Clark Brook, 1.7	51	Bug			G			
Hannah Clark Brook, 1.7	51	Fish			U			
Wade Brook, 0.1	52	Bug					E	
Jay Brook, 0.3	53	Bug					VgE	
Godin Brook, 0.4	54	Bug					FG	
Godin Brook, 0.4	54	Fish					F	
Godin Brook, 0.5	55	Bug	F					
Godin Brook, 0.5	55	Fish	F					
Loveland Brook, 0.9	56	Bug					E	
Berry Brook, 0.2	57	Bug					G	
Berry Brook, 0.2	57	Fish					F	
Berry Brook, 1.2	58	Bug	Vg					
Berry Brook, 1.2	58	Fish	Vg					
Mountain Brook, 0.6	59	Bug					GVg	
Mountain Brook, 0.6	59	Fish					P	

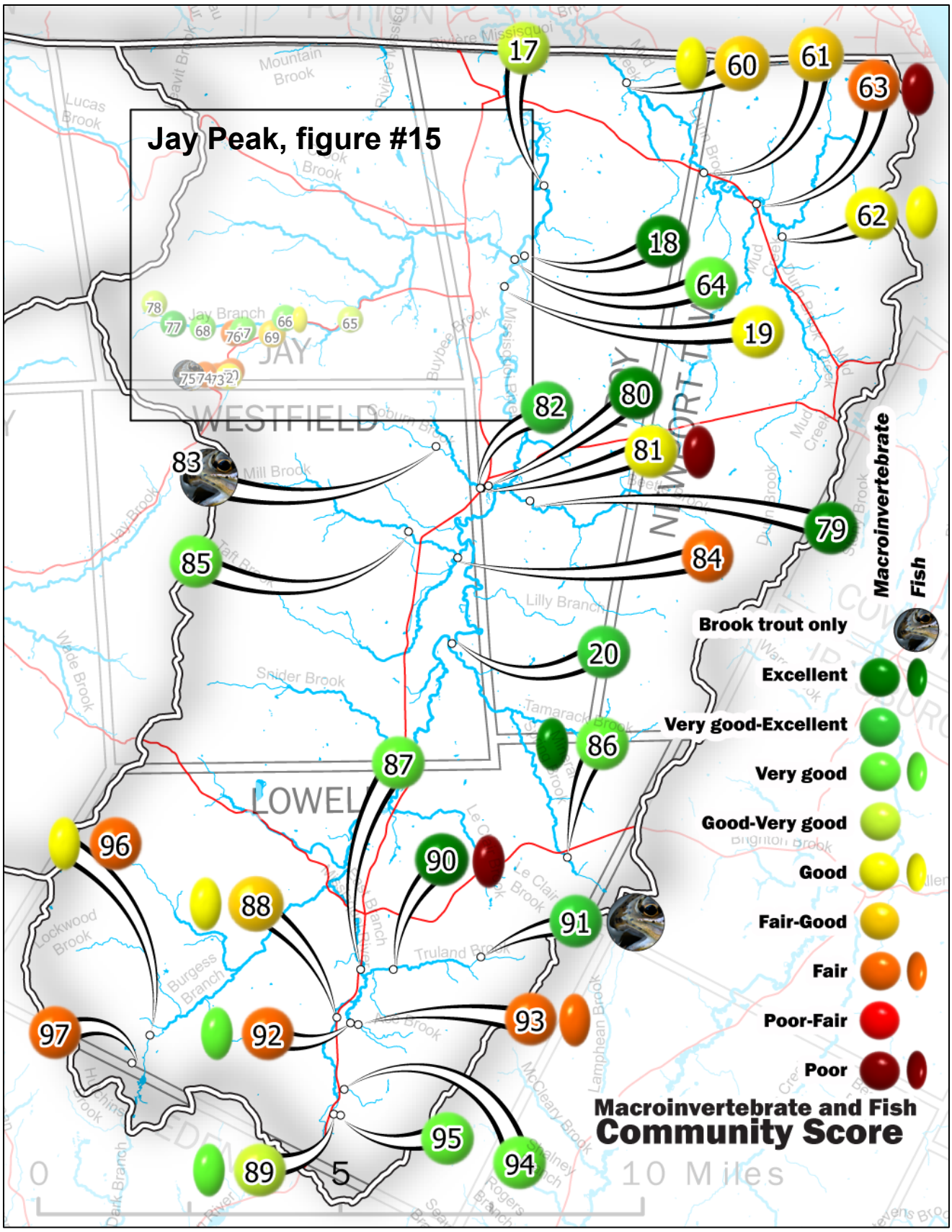

Figure 14 Map of the most recent fish and macroinvertebrate community assessments over the last 10 years (2013-2023)(?) for Basin 6 upper watershed, (see below). Poor scores represent the greatest deviation from reference conditions and Excellent scores represent non-significant deviation from reference conditions. We do not have criteria for assessing Brook Trout Only streams (where brook trout are the only observed taxa). Map IDs correspond with the table below.

Table 16 Macroinvertebrate (bug) and fish community matrix for the watersheds of Basin 6, upper watershed. Blank = no data, BKT = streams with a robust brook trout community

Unable to sample or assess	Poor (P)	Poor-fair (PF)	Fair (F)	Fair-good (Fg)	Good (G)	Good-Very good (GVg)	Very good (Vg)	Very good-excellent (VgE)	Excellent (E)

Name	Map ID	Set	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Missisquoi River, 69.9	17	Bug								GVg			
Missisquoi River, 71.6	18	Bug	E										
Missisquoi River, 72.6	19	Bug	E					G					
Missisquoi River, 80.2	20	Bug	VgE										
Mud Creek, 4.0	60	Bug	FG										
Mud Creek, 4.0	60	Fish	G										
Mud Creek, 6.6	61	Bug	FG										
Mud Creek, 6.6	61	Fish	U										
Mud Creek, 9.8	62	Bug	G					G					
Mud Creek, 9.8	62	Fish	G										
Mud Creek Trib 10, 0.2	63	Bug						F					
Mud Creek Trib 10, 0.2	63	Fish						P					
Jay Branch, 0.1	64	Bug						Vg					
Jay Branch, 5.4	65	Bug						GVg					
Jay Branch, 5.4	65	Fish						G					
Jay Branch, 7.3	66	Bug	G	G	FG	G	Vg	G	G	G	Vg		
Jay Branch, 8.3	67	Bug	F	F	FG	G	GVg	F	G	GVg	GVg	Vg	Vg
Jay Branch, 9.1	68	Bug	FG	F	G	G	G	G	G		Vg		
South Mountain Branch, 1.2	69	Bug	PF	FG	F	F	FG	FG	G	G		FG	
South Mountain Branch, 2.2	70	Bug	F										
South Mountain Branch, 2.4	71	Bug	F						FG	G	GVg	G	G
South Mountain Branch, 2.4	71	Fish	BKT										
South Mountain Branch Trib 3, 0.1	72	Bug	PF	F	P	PF	PF	PF	F	G	F	FG	F
South Mountain Branch Trib 3, 0.1	72	Fish	BKT										
South Mountain Branch Trib 3, 0.3	73	Bug							F				
South Mountain Branch Trib 3, 0.5	74	Bug		G	F								
South Mountain Branch Trib 3, 0.8	75	Bug				GVg	G	G	G	FG	GVg	G	G
Jay Branch Trib 9, 0.1	76	Bug	F	F	PF	GVg	G	G	GVg	F	F	FG	F

Name	Map ID	Set	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Jay Branch Trib 12, 0.2	77	Bug	VgE										
Jay Branch Trib 13, 0.2	78	Bug	VgE	E	VgE	VgE	Vg	Vg	VgE	GVg	GVg	G	GVg
Beetle Brook, 1.1	79	Bug	E										
Coburn Brook, 0.0	80	Bug	E										
Coburn Brook, 0.2	81	Bug	F					G					
Coburn Brook, 0.2	81	Fish									P		
Coburn Brook, 0.3	82	Bug						U			VgE		
Coburn Brook, 1.6	83	Fish											BKT
Taft Brook, 0.3	84	Bug						F					
Mill Brook, 1.2	85	Bug						Vg					
Mill Brook, 1.2	85	Fish						U					
Mineral Spring Brook, 5.0	86	Bug			Vg								
Mineral Spring Brook, 5.0	86	Fish			E								
East Branch Missisquoi River, 1.7	87	Bug	G	G	Vg								
East Branch Missisquoi River, 3.0	88	Bug	G	VgE	VgE	Vg	Vg	FG					
East Branch Missisquoi River, 3.0	88	Fish	F	F	G								
East Branch Missisquoi River, 5.4	89	Bug	GVg	GVg	GVg								
East Branch Missisquoi River, 5.4	89	Fish	Vg	Vg	Vg								
Truland Brook, 0.7	90	Bug	FG	VgE	Vg	Vg	VgE	E					
Truland Brook, 0.7	90	Fish	P	P	P								
Truland Brook, 1.8	91	Bug	VgE										
Truland Brook, 1.8	91	Fish	BKT										
Ace Brook, 0.6	92	Bug	F	VgE	GVg	Vg	G	F					
Ace Brook, 0.6	92	Fish	P	P	Vg								
Ace Brook, 0.7	93	Bug	FG	F	F								
Ace Brook, 0.7	93	Fish	G	P	F								
East Branch Missisquoi Trib 8, 0.2	94	Bug	GVg	GVg	Vg								
East Branch Missisquoi Trib 10, 0.1	95	Bug	Vg	GVg	Vg								
Burgess Branch, 5.0	96	Bug	F										
Burgess Branch, 5.0	96	Fish	G										
Burgess Branch Trib 11, 0.4	97	Bug						F					

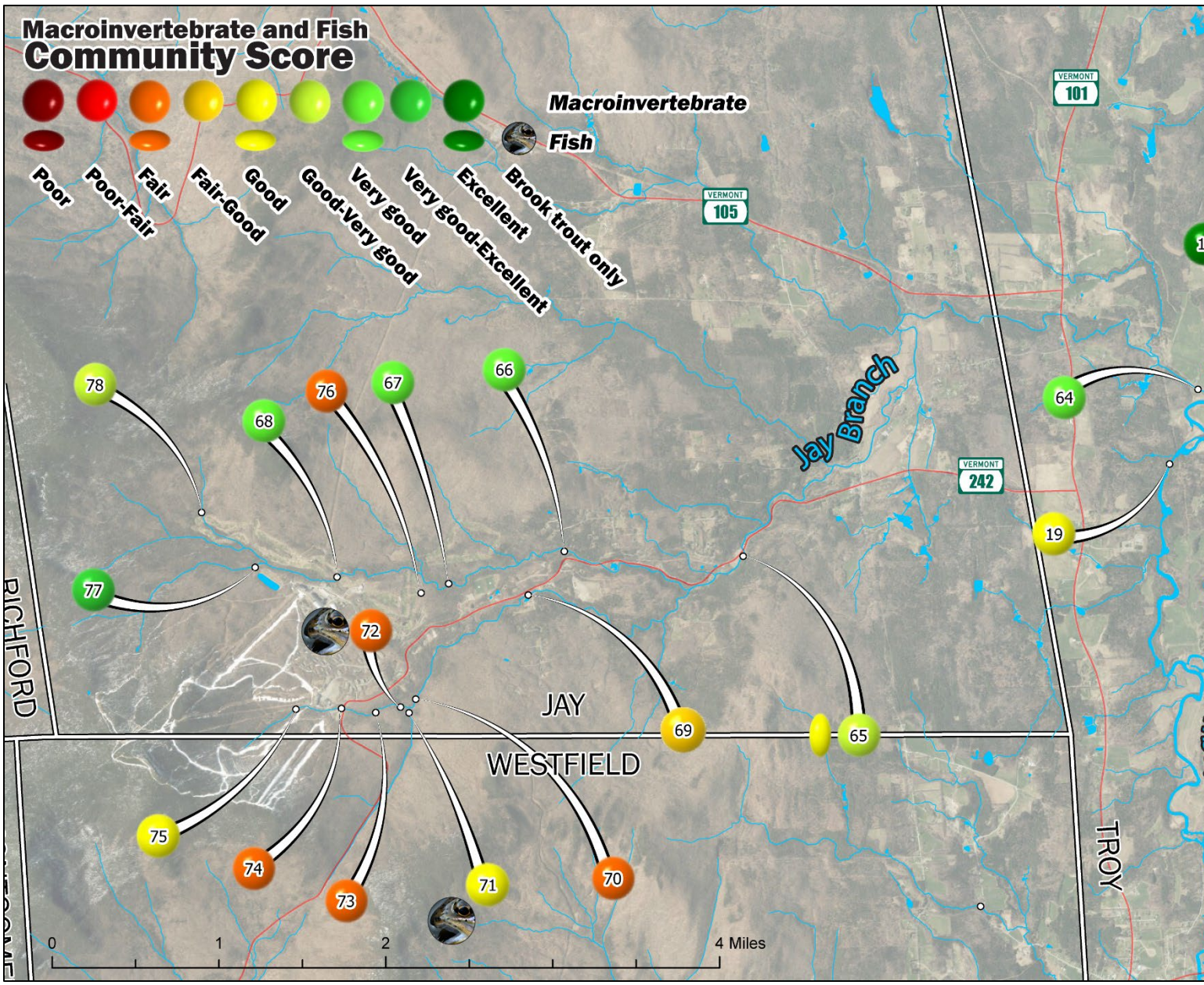

Figure 15 Map of the Macroinvertebrate Community assessment for Basin 6 mid watershed. Poor scores represent the greatest deviation from reference conditions and Excellent scores represent non-significant deviation from reference conditions. We do not have criteria for assessing Brook Trout Only streams (where Brook Trout are the only observed taxa). Map IDs correspond with the table above.

Chemical water quality monitoring occurs across the state in rivers and streams in a variety of ways: targeted, probability-based, and special studies. Examples of targeted monitoring include the LaRosa Partnership Program (LPP) and most water quality samples collected by the Ambient Biomonitoring Network (ABN). All chemical data can be accessed through the Vermont Integrated Watershed Information System (VIWIS) and generally there is too much data that requires special contextual information to effectively display in graphics and tables in the format of this report. LPP monitoring stations are normally sampled eight times during the spring and summer season, and may be monitored from one to several years, depending on the monitoring purpose. LPP data can provide enough information to make assessment determinations (i.e., impaired or full support). Chemical monitoring associated with the ABN is used to help interpret the biological data, which is relied upon more heavily for assessment and regulatory purposes.

Special chemical studies are usually only conducted in response to compelling data and information obtained from fixed-station and probability-based projects. The number and nature of special studies is commonly dictated by the nature of issues that need further monitoring or that arise as interest or funding permits. These types of studies include detailed sampling to assess use support or standards violations, stressor identification, diagnostic-feasibility studies, effectiveness evaluations of pollution control measures, and watershed-based surveys and evaluations. These evaluations are usually resource intensive and are reserved for issues of particular interest. Additionally, data from these investigations are usually organized and presented in a summary report format and would not be used separately for assessments.

River reclassification candidates (Aquatic biota)

To protect aquatic biota in rivers in the State of Vermont, the Watershed Management Division can initiate reclassification for Aquatic Biota use in rivers that meet a high-quality standard. The major implication of reclassification is the application of new *Water Quality Standards*. Most rivers in the State of Vermont are classified B(2) for Aquatic Biota use and must maintain biological assessments of Good or better for both macroinvertebrate and fish communities. Rivers reclassified to B(1) must maintain biological assessments of Very Good or better, and rivers reclassified to A(1) must maintain biological assessments of Excellent. The rivers shown here have maintained biological condition expected of either A(1) or B(1) waters and therefore, are candidates for reclassification. For more information, visit the *stream reclassification webpage*.

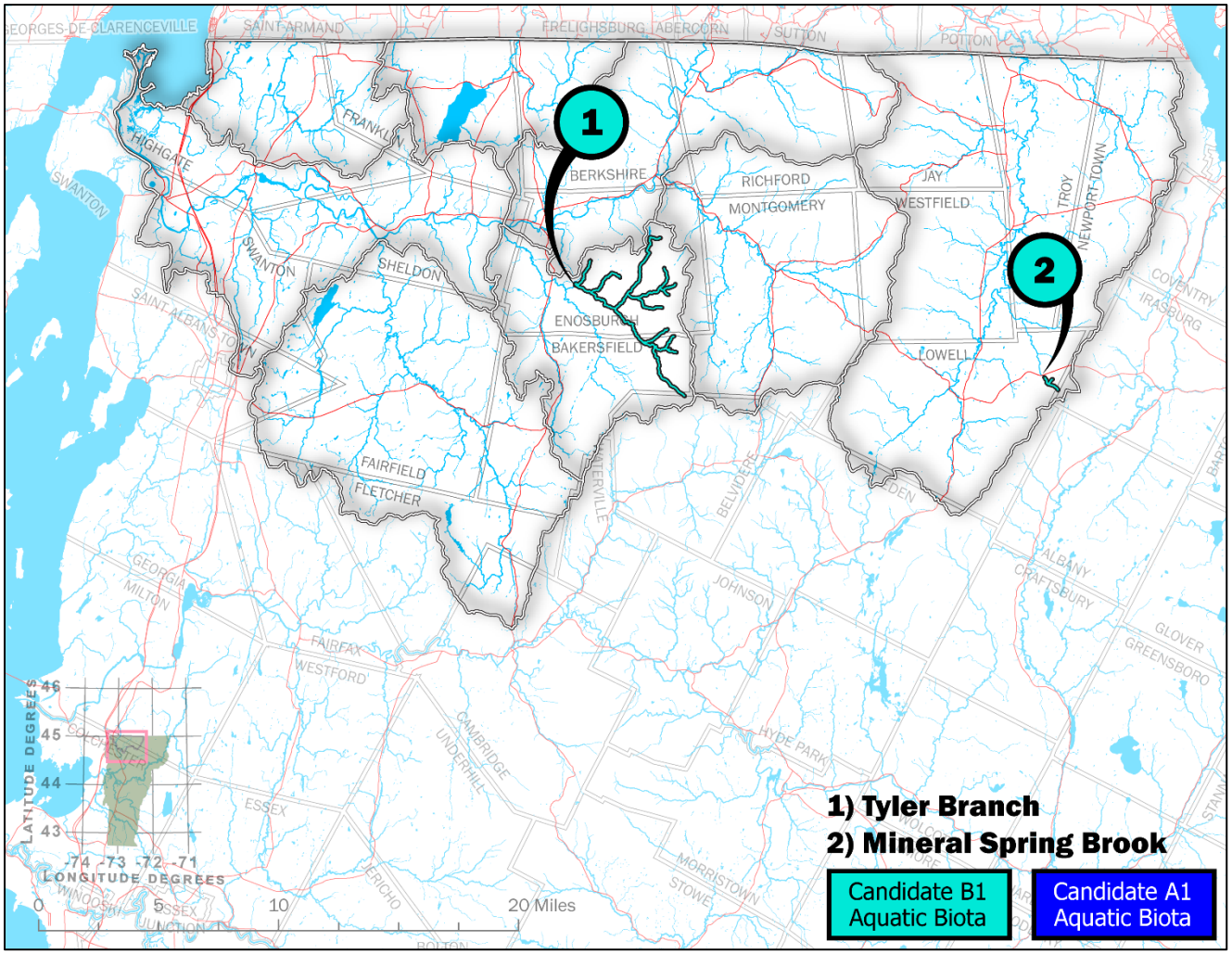

Figure 16 Map of A(1) and B(1) reclassification candidates, Basin 6 north. Map IDs correspond to the table below.

Table 17 Table of A(1) and B(1) reclassification candidates. Map IDs correspond to the map above. The community column identifies the community assessed.

Unable to sample or assess (or BKT)	Poor (P)	Poor-fair (PF)	Fair (F)	Fair-good (Fg)	Good (G)	Good-Very good (GVg)	Very good (Vg)	Very good-excellent (VgE)	Excellent (E)

Name	Map ID	Set	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Tyler Branch, 5.3	1	Bug						Vg		Vg			
Tyler Branch, 5.3	1	Fish								Vg			
Mineral Spring Brook, 5.0	2	Bug			Vg								
Mineral Spring Brook, 5.0	2	Fish			E								

Impaired rivers

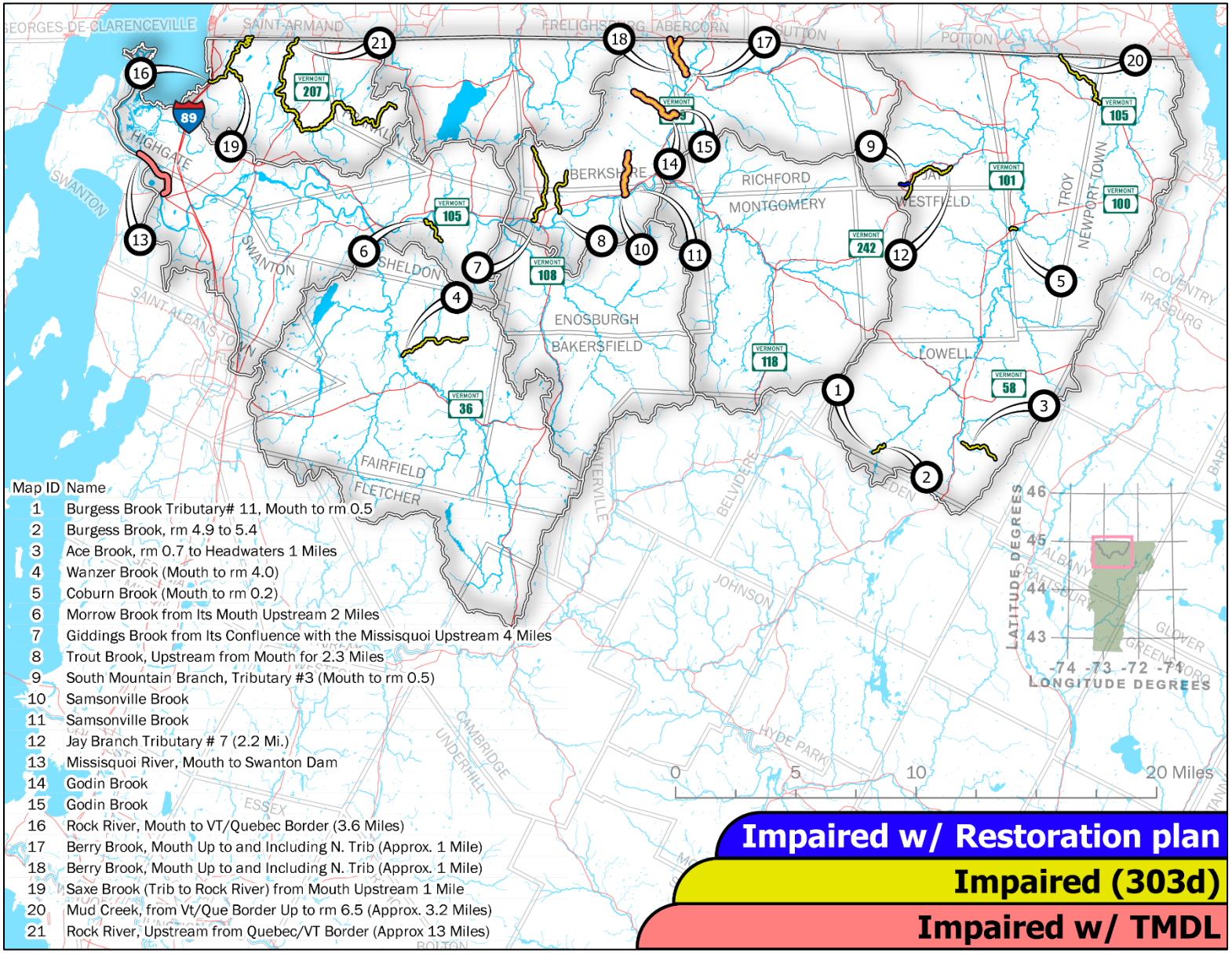

Figure 17. Map of impaired rivers in Basin 6. Yellow represents rivers that are on the 2024 303(d) list (Part A-Priority Waters List). Salmon represents rivers that have an approved TMDL but remain impaired (Part D-Priority Waters List). Use the stream name and the first seven characters of the Assessment Unit ID to find monitoring data from the reach in this report viewer.

Table 18 Table of impaired rivers in Basin 6. Map IDs are associated with the map above. (AB) Aquatic biota and wildlife that may utilize or are present in the waters; (AH) Aquatic habitat to support aquatic biota, wildlife, or plant life; (CR) The use of waters for swimming and other primary contact recreation; (RF) The use of waters for fishing and related recreational uses; (RB) The use of waters for boating and related recreational uses; (AES) The use of waters for the enjoyment of aesthetic conditions.

MAP ID	NAME	ASSESSMENT UNIT ID	POLLUTANT	PROBLEM	IMPAIRED USE	PART
1	Burgess Branch Tributary# 11, Mouth to rm 0.5	VT06-08.06	SEDIMENTATION/SILTATION, ASBESTOS	Asbestos mine tailings erosion; asbestos fibers	AB, CR	A
2	Burgess Branch, rm 4.9 to 5.4	VT06-08.05	SEDIMENTATION/SILTATION, ASBESTOS	Asbestos mine tailings erosion; asbestos fibers	AB, CR	A
3	Ace Brook, rm 0.7 to Headwaters 1 Miles	VT06-08.10	SEDIMENTATION/SILTATION	Sediment discharges and hydrologic change from logging activity	AB	A
4	Wanzer Brook (Mouth to rm 4.0)	VT06-05.02	NUTRIENTS, SEDIMENTATION/SILTATION	Agricultural runoff	AB	A
5	Coburn Brook (Mouth to rm 0.2)	VT06-08.04	NUTRIENTS	Agricultural activities and runoff	AB	A
6	Morrow Brook from Its Mouth Upstream 2 Miles	VT06-03.01	NUTRIENTS	Runoff from agricultural lands	AB	A
7	Giddings Brook from Its Confluence with the Missisquoi Upstream 4 Miles	VT06-04.06	POLLUTANTS IN URBAN STORMWATER, NUTRIENTS	Runoff from agricultural and developed lands	AB	A
8	Trout Brook, Upstream from Mouth for 2.3 Miles	VT06-04.04	NUTRIENTS	Runoff from agricultural lands	AB	A

MAP ID	NAME	ASSESSMENT UNIT ID	POLLUTANT	PROBLEM	IMPAIRED USE	PART
9	South Mountain Branch, Tributary #3 (Mouth to rm 0.5)	VT06-08.07	SEDIMENTATION/SILTATION	Erosion from parking areas and on-mountain activities.	AB	B
10	Samsonville Brook	VT06-04.03	SEDIMENTATION/SILTATION, NUTRIENTS	Agricultural runoff, aquatic habitat impacts	AB, AES	A
11	Samsonville Brook	VT06-04.03	ESCHERICHIA COLI (E. COLI)	Elevated E. coli levels	CR	D
12	Jay Branch Tributary # 7 (2.2 Mi.)	VT06-08.09	SEDIMENTATION/SILTATION	Erosion from parking areas and on-mountain activities	AB	A
13	Missisquoi River, Mouth to Swanton Dam	VT06-01.01	MERCURY IN FISH TISSUE	Elevated levels of mercury in walleye	FC	D
14	Godin Brook	VT06-04.02	SEDIMENTATION/SILTATION, NUTRIENTS	Agricultural runoff, aquatic habitat impacts	AB, AES	A
15	Godin Brook	VT06-04.02	ESCHERICHIA COLI (E. COLI)	Elevated E. coli levels	CR	D
16	Rock River, Mouth to VT/Quebec Border (3.6 Miles)	VT05-01.01	NUTRIENTS, SEDIMENTATION/SILTATION	Algal growth; agricultural runoff	AH, AES	A
17	Berry Brook, Mouth Up to and Including N. Trib (Approx. 1 Mile)	VT06-04.01	NUTRIENTS, SEDIMENTATION/SILTATION	Agricultural runoff, aquatic habitat impacts	AB, AES	A

MAP ID	NAME	ASSESSMENT UNIT ID	POLLUTANT	PROBLEM	IMPAIRED USE	PART
18	Berry Brook, Mouth Up to and Including N. Trib (Approx. 1 Mile)	VT06-04.01	ESCHERICHIA COLI (E. COLI)	Elevated E. coli levels	CR	D
19	Saxe Brook (Trib to Rock River) from Mouth Upstream 1 Mile	VT05-01.03	NUTRIENTS	Agricultural runoff	AB	A
20	Mud Creek, from Vt/Que Border Up to rm 6.5 (Approx. 3.2 Miles)	VT06-08.03	NUTRIENTS, SEDIMENTATION/SILTATION	Agricultural runoff; nutrient enrichment impacts macroinvertebrates	AB, AES	A
21	Rock River, Upstream from Quebec/VT Border (Approx 13 Miles)	VT05-01.02	NUTRIENTS, SEDIMENTATION/SILTATION	Nutrient enrichment; agricultural runoff	AB	A

Altered Rivers

Altered waters are waters where a lack of flow, water level or flow fluctuations, modified hydrology, physical channel alterations, documented channel degradation, or stream type change is occurring and arises from some human activity, or where the occurrence of aquatic invasive species has had negative impacts on designated uses. This assessment category includes those waters where there is documentation of water quality standards violations for flow and aquatic habitat, but EPA does not consider the problem(s) caused by a pollutant.

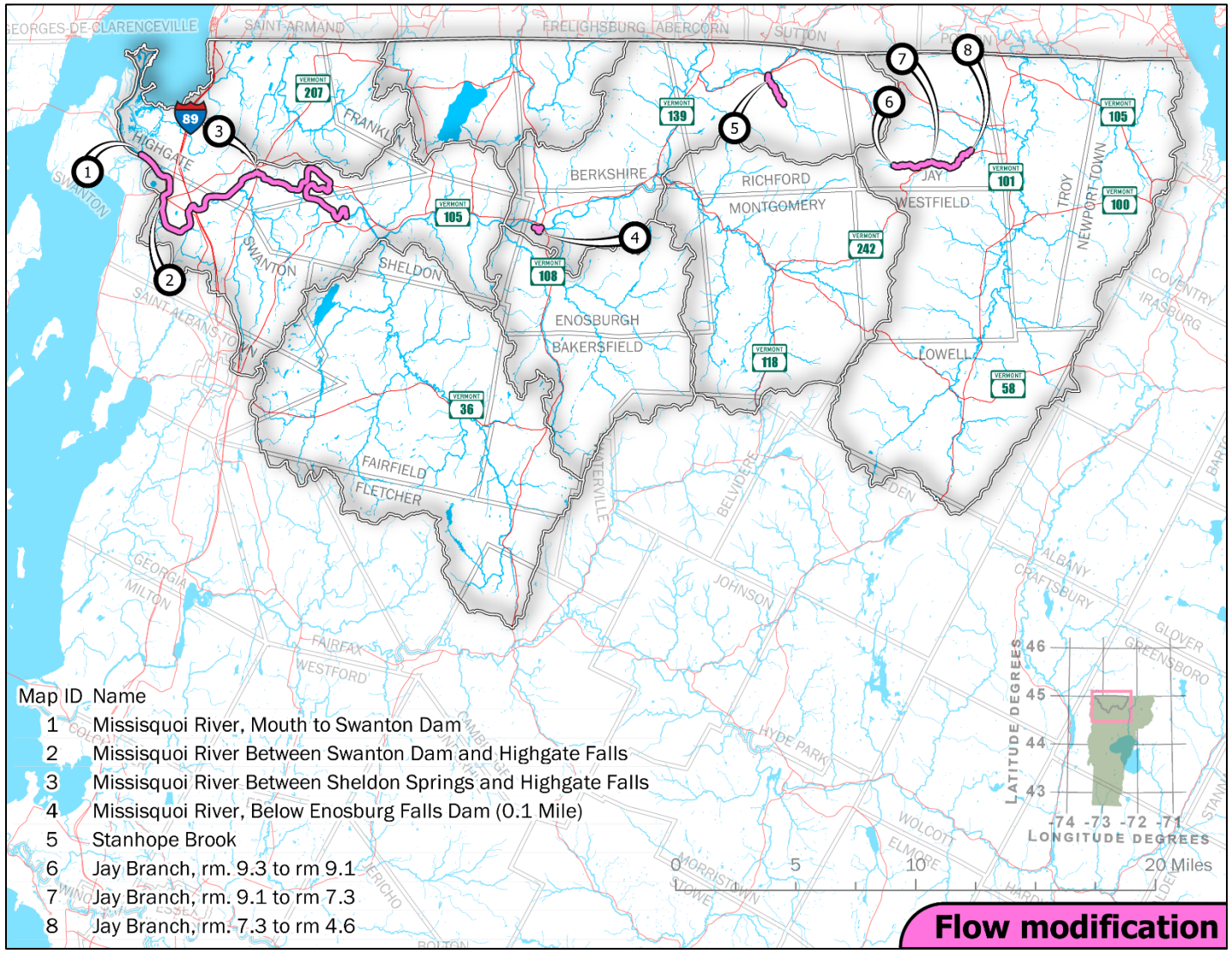

Figure 18 Map of altered rivers for Basin 6. Rivers in green are those altered by aquatic invasive species.

Table 19 Table of altered rivers in Basin 6. Map IDs are associated with the map above. (ALS) Aquatic biota and wildlife that may utilize or are present in the waters; (AH) Aquatic habitat to support aquatic biota, wildlife, or plant life; (CR) The use of wate6rs for swimming and other primary contact recreation; (RF) The use of waters for fishing and related recreational uses; (RB) The use of waters for boating and related recreational uses; (AES) The use of waters for the enjoyment of aesthetic conditions.

MAP ID	NAME	PROBLEM	USES	PART
1	Missisquoi River, Mouth to Swanton Dam	FERC license expires 2024; Artificial flow fluctuating and condition by hydropower production	AB, RB	F
2	Missisquoi River Between Swanton Dam and Highgate Falls	FERC license expires 2024; Artificial flow fluctuating and condition by hydropower production	AB, RB	F
3	Missisquoi River Between Sheldon Springs and Highgate Falls	FERC license expires 2024; Owner has proposed to operate in a run-of-river mode under a new license; Artificial flow fluctuating and condition by hydropower production	AB, RB	F
4	Missisquoi River, Below Enosburg Falls Dam (0.1 Mile)	FERC license expires 2023; Owner in in the process or going through the FERC relicensing process; Artificial flow fluctuating and condition by hydropower production	AB	F
5	Stanhope Brook	Richford water supply; Possible lack of minimum flow below water supply withdrawl point	AB	F
6	Jay Branch, rm. 9.3 to rm 9.1	Partial support 4.7 mi (8.7 mi total length); Jay Peak evaluating expansion/alternatives; Artificial & insufficient flow below Jay Peak snowmaking water withdrawal	AB	F
7	Jay Branch, rm. 9.1 to rm 7.3	Artificial & insufficient flow below Jay Peak snowmaking water withdrawal	AB	F
8	Jay Branch, rm. 7.3 to rm 4.6	Partial support 4.7 mi (8.7 mi total length); Jay Peak evaluating expansion/alternatives; Artificial & insufficient flow below Jay Peak snowmaking water withdrawal	AB	F

Trending rivers

To maintain waters in their current state, WSMD conducts long term monitoring on surface waters and identifies increasing, stable, and decreasing trends of the most relevant water quality parameters in the Vermont Water Quality Standards. Modeling trends can act as an early warning system for declining water quality, and it may be cost effective to reduce stressors to these waters before they become impaired or altered. Likewise, improving trends can show areas of effective remediation. For each biological monitoring site, two linear regression models are used with year of sampling as the independent variable. The response variables include the community assessment ratings for macroinvertebrates and/or fish (Poor to Excellent; coded as 1 to 9). Sites with more than three data points were included. Data from sites is pooled by coincident NHD+ reach code (multiple sites on the same reach) unless the sites are bracketing. Trends are categorized into three groups: Improving (models with p-values <0.1 and positive coefficients), stable (models with p-values > 0.1) and declining (models with p-values <0.1 and negative coefficients.

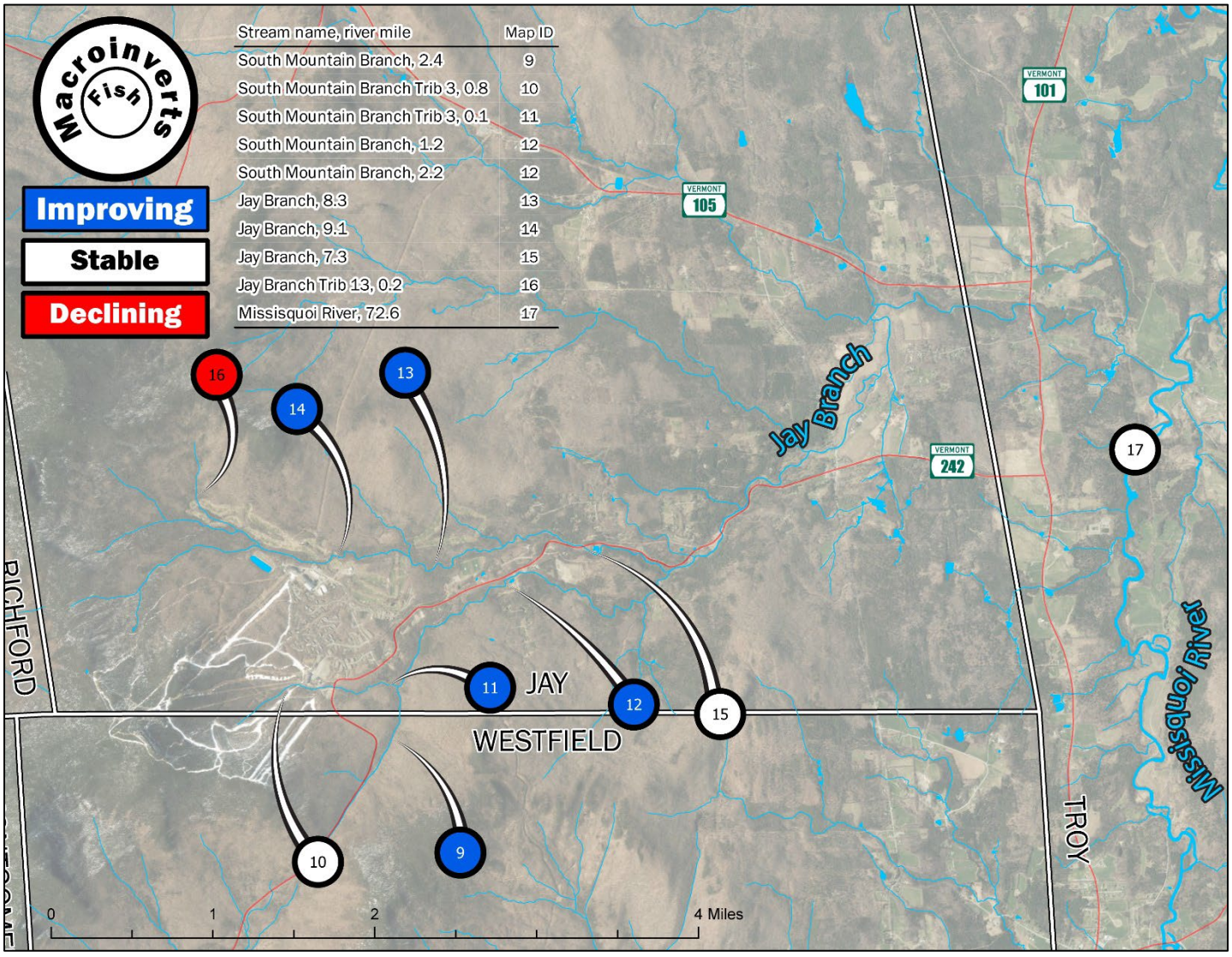

Figure 19 Map of rivers with enough biological data to model a water quality trend in the Jay Peak area—an inset of figure 20.

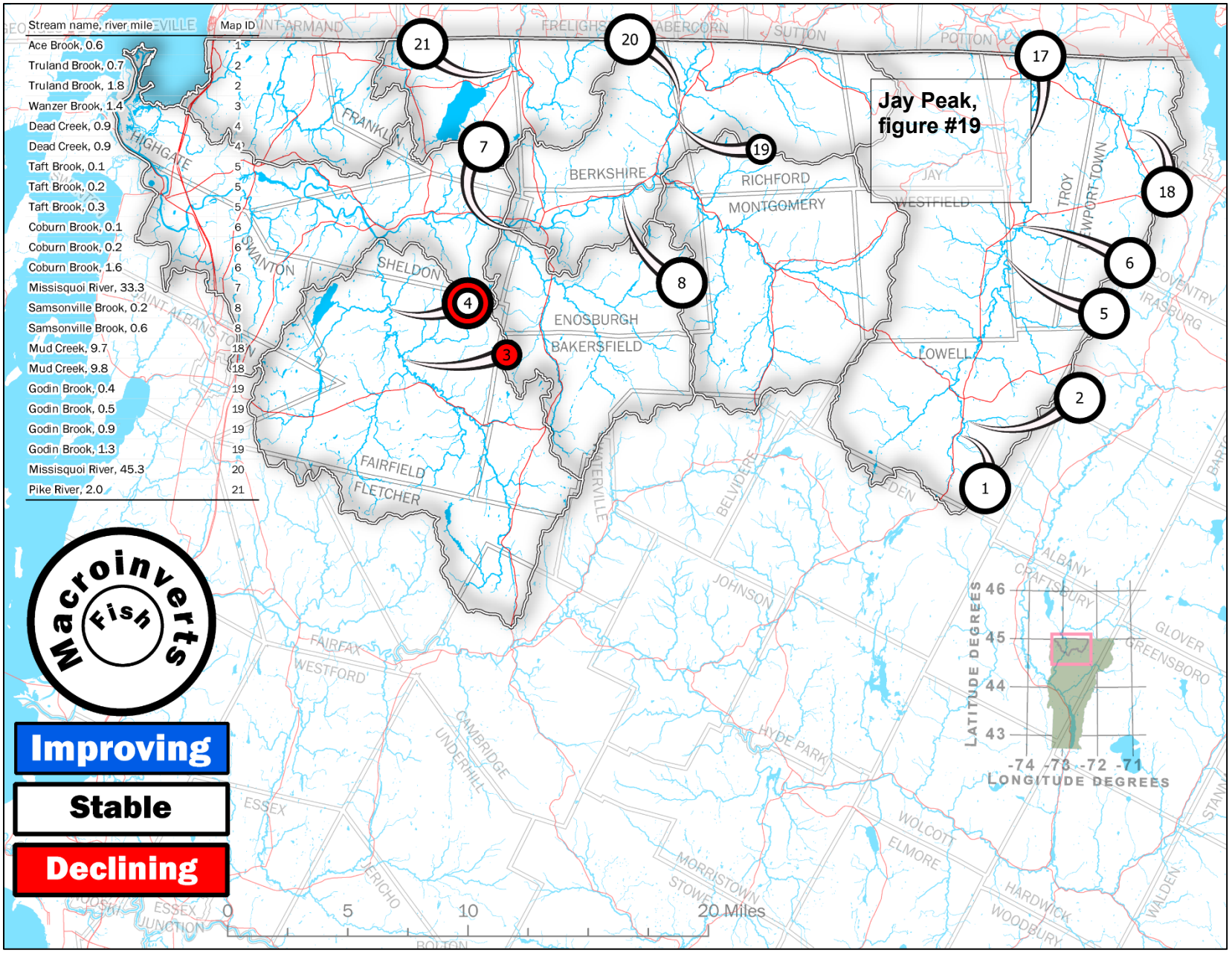

Figure 20 Map of rivers with enough biological data to model a water quality trend. The small circle represents the fish trend and the large circle represents macroinvertebrates.

Table 20 Trends in biological condition of macroinvertebrate (bug) and fish communities in Basin 6. + Improving, - declining, = stable/no trend. B = Bug community, F = Fish community. Community: B = macroinvertebrate, F = fish.

Unable to sample or assess	Poor	Poor-fair	Fair	Fair-good	Good	Good-Very good	Very good	Very good-excellent	Excellent

Stream name, river mile	Map ID	Set	1999	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Ace Brook, 0.6	1	B	0	0	0	0	0	0	0	0	GVg	E	GVg	F	VgE	GVg	Vg	G	F	0	0	0	0	0
Truland Brook, 0.7	2	B	0	0	0	0	0	0	0	0	0	FG	GVg	FG	VgE	Vg	Vg	VgE	E	0	0	0	0	0
Truland Brook, 1.8	2	B	0	0	0	0	0	0	0	0	0	0	0	VgE	0	0	0	0	0	0	0	0	0	0
Wanzer Brook, 1.4	3	F	0	0	F	0	F	0	0	0	0	0	0	0	0	0	0	0	P	0	0	0	0	0
Dead Creek, 0.9	4	B	0	0	0	0	0	0	0	G	0	0	0	0	0	0	0	0	F	F	0	0	0	F
Dead Creek, 0.9	4	F	0	0	0	0	0	0	0	P	0	0	0	0	0	0	0	0	P	0	0	0	0	P
Taft Brook, 0.1	5	B	P	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taft Brook, 0.2	5	B	0	0	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taft Brook, 0.3	5	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	F	0	0	0	0	0
Coburn Brook, 0.1	6	B	PF	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Coburn Brook, 0.2	6	B	0	P	FG	0	0	0	0	0	0	0	0	F	0	0	0	0	G	0	0	0	0	0
Coburn Brook, 1.6	6	B	0	0	GVg	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missisquoi River, 33.3	7	B	Vg	0	VgE	0	0	0	0	0	0	0	0	GVg	0	0	0	0	0	0	0	GVg	0	0
Samsonville Brook, 0.2	8	B	0	F	0	P	0	0	0	F	0	0	0	0	0	0	0	0	P	0	0	0	0	0
Samsonville Brook, 0.6	8	B	G	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
South Mountain Branch, 2.4	9	B	0	0	0	0	0	0	0	0	0	0	0	F	0	0	0	0	0	FG	G	GVg	G	G
South Mountain Branch Trib 3, 0.8	10	B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	GVg	G	G	G	FG	GVg	G	G
South Mountain Branch Trib 3, 0.1	11	B	0	0	0	0	0	0	0	0	0	P	PF	PF	F	P	PF	PF	PF	F	G	F	FG	F
South Mountain Branch, 1.2	12	B	0	0	0	0	0	0	0	0	0	0	F	PF	FG	F	F	FG	FG	G	G	0	FG	0

Stream name, river mile	Map ID	Set	1999	2000	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
South Mountain Branch, 2.2	12	B	0	0	0	0	0	0	0	0	0	0	0	F	0	0	0	0	0	0	0	0	0	0
Jay Branch, 8.3	13	B	0	0	FG	F	FG	G	F	G	GVg	F	F	F	F	FG	G	GVg	F	GVg	GVg	GVg	Vg	U
Jay Branch, 9.1	14	B	0	0	0	F	0	F	GVg	F	GVg	F	F	G	G	G	G	G	G	G	0	Vg	0	0
Jay Branch, 7.3	15	B	0	0	F	G	F	FG	VgE	G	G	PF	F	G	G	FG	G	Vg	G	G	G	Vg	0	0
Jay Branch Trib 13, 0.2	16	B	0	0	0	0	0	0	VgE	VgE	E	E	E	VgE	E	VgE	VgE	Vg	Vg	VgE	GVg	GVg	G	GVg
Missisquoi River, 72.6	17	B	0	0	0	0	0	0	0	Vg	0	0	0	E	0	0	0	0	G	0	0	0	0	0
Mud Creek, 9.7	18	B	0	0	0	0	0	0	0	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mud Creek, 9.8	18	B	0	0	0	0	0	0	0	0	0	0	0	G	0	0	0	0	G	0	0	0	0	0
Godin Brook, 0.4	19	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	F	0	0	0	0	0
Godin Brook, 0.5	19	F	0	0	0	0	0	0	0	0	0	0	0	0	F	0	0	0	0	0	0	0	0	0
Godin Brook, 0.9	19	F	F	F	0	0	0	0	0	F	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Godin Brook, 1.3	19	F	F	G	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Missisquoi River, 45.3	20	B	E	0	Vg	0	0	0	0	G	0	0	0	F	0	0	0	GVg	0	0	0	0	E	0
Pike River, 2.0	21	B	G	0	E	0	0	0	0	GVg	0	0	0	0	0	0	0	0	G	0	0	0	0	0

Rivers in need of assessment

Aquatic biota health in streams is one of the primary areas of assessment by the WSMD. In the sections above, areas with sufficient data were used to determine a river's ability to fully support aquatic biota. This section highlights the 98 streams within this basin that lack data needed to determine the support status of aquatic biota. Streams with drainage areas larger than 2 square kilometers and having no biological data between 2000 and 2024 were included. Because all these streams cannot be monitored at the same time, land use/cover data are provided in the figure below to aid site prioritization. Many of these streams are unnamed, therefore, names were added based on their source location (hill names) or adjacent road names and are identified by an asterisk.

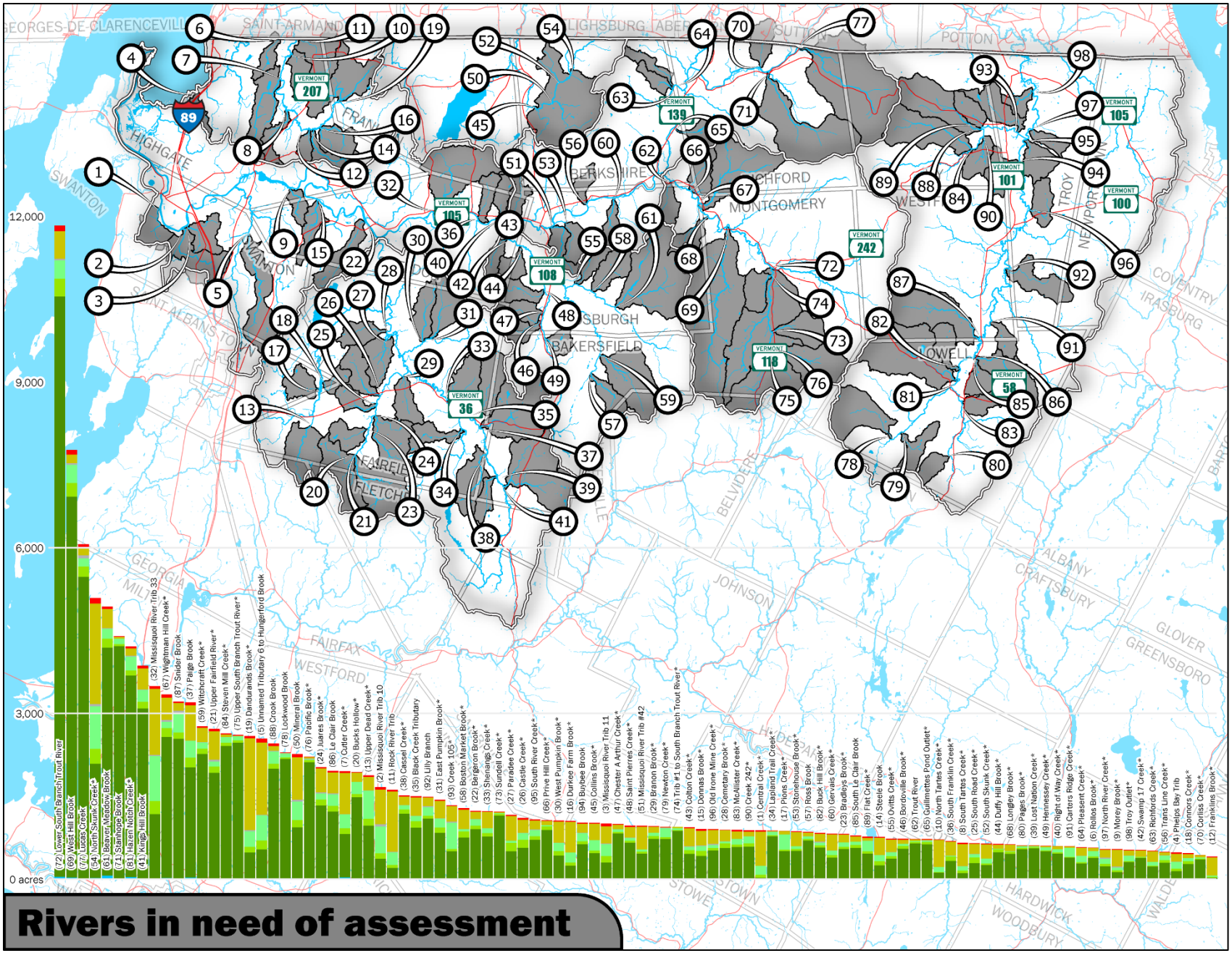

Figure 21 Waters in need of assessment for aquatic biota use in Basin 6 west?

Table 21. Rivers with unassessed aquatic biota use, values are in percent land cover. The Map IDs correspond to the map above. Latitude and longitudes designate the pour point of the watershed. Asterisks are officially unnamed streams.

Name, Map ID	Latitude	Longitude	Acres	Developed	Agriculture	Other	Wetlands	Herbaceous	Forest	Water
(1) Central Creek*	44.9116	-73.13	878.6	2.2	70.6	0.3	18.2	6	2.6	0.1
(2) Missisquoi River Trib 10	44.8996	-73.11	1666.6	2.6	38	2.6	28.7	6.1	21.3	0.7
(3) Missisquoi River Trib 11	44.9016	-73.106	1002.6	4.5	31.5	1	21.6	11.7	29.5	0.2
(4) Phelps Bay Trib	44.9816	-73.098	484.5	5.5	29.8	1.4	24.4	8.9	29.7	0.3
(5) Unnamed Tributary 6 to Hungerford Brook	44.8968	-73.054	2542.2	2.7	51.6	0.4	17.8	6.3	21	0.2
(6) Rollos Brook*	45.0147	-73.028	567.1	0.6	10.5	0	16.9	4.3	67.6	0
(7) Cutler Creek*	44.9907	-73.028	1950.8	1.6	38.3	0.2	12.8	5.4	40.5	1.3
(8) South Tartes Creek*	44.9717	-73.023	656.3	3.2	61.6	0.3	11.5	7.3	16.1	0
(9) Morey Brook*	44.924	-73.019	540.3	2.5	56.1	3.1	8.9	6.4	22.8	0.2
(10) North Tartes Creek*	45.0052	-73.018	714.8	0.7	69.2	0.1	12.2	1.6	16.2	0
(11) Rock River Trib	45.0145	-73.011	1614.9	1.7	67.8	0.5	14.3	3.2	12.4	0.1
(12) Franklins Brook*	44.9603	-73.003	405.5	3.5	81.4	0.3	4.9	4	5.9	0.1
(13) Upper Dead Creek*	44.7818	-73.001	1879.3	1.5	13.2	0.1	27	6.7	51.3	0.1
(14) Steele Brook	44.96	-73	761.2	1.5	41.5	0.7	13.6	10.1	32.4	0.2
(15) Donnas Brook*	44.9177	-72.996	906.5	3.3	30	1	9.3	10.1	46.1	0.2
(16) Durkee Farm Brook*	44.9616	-72.994	1052.3	1.4	53.3	0.1	16.9	5.1	23.1	0
(17) Pions Creek*	44.8042	-72.994	872	0.4	7.1	0	31.3	2.8	57.8	0.6
(18) Connors Creek*	44.8085	-72.99	468.8	3.2	16.4	0.2	10.8	11.3	57.3	0.8
(19) Dandurands Brook*	44.9769	-72.979	2588.8	1.6	64.3	0.8	10.8	4	18.4	0.1
(20) Bucks Hollow*	44.7641	-72.963	1935.3	0.4	8.8	0	11	3.1	76.4	0.2
(21) Upper Fairfield River*	44.7641	-72.963	2719.9	1.6	18.9	1.2	3.3	4.1	70.6	0.2
(22) Bergeron Brook*	44.9042	-72.956	1231.6	1	10.9	0.6	8.9	5.2	72.7	0.6
(23) Bradleys Brook*	44.7802	-72.953	814.4	1.3	17.6	0	9.4	5	65.5	1.2
(24) Juares Brook*	44.7882	-72.946	2027	1	21.6	1.1	5.2	5.3	65.5	0.2
(25) South Road Creek*	44.7958	-72.945	648.8	1.9	28.3	1	8.4	15.7	44.3	0.3
(26) Castle Creek*	44.7999	-72.942	1105.3	2.7	22	0.2	10.5	13.2	51.1	0.2
(27) Paradee Creek*	44.834	-72.937	1161.7	1.8	38.6	0.2	3	13	43.2	0.2
(28) Cemetary Brook*	44.8389	-72.937	890.7	1	22.7	0.2	3.4	9.8	62.7	0.3
(29) Branon Brook*	44.8119	-72.923	955.7	1	11.6	0.1	5.9	5.1	76.1	0.3
(30) West Pumpkin Brook*	44.8327	-72.906	1056.6	1.5	36.6	0.2	13.6	7.7	39.9	0.5

Name, Map ID	Latitude	Longitude	Acres	Developed	Agriculture	Other	Wetlands	Herbaceous	Forest	Water
*(31) East Pumpkin Brook**	44.8349	-72.9	1435.5	1.3	22.1	0.6	11	6.7	58.1	0.1
(32) Missisquoi River Trib 33	44.9111	-72.897	3493.9	1.3	34.3	0.7	23.2	6.8	33.5	0.1
*(33) Shenangs Creek**	44.7981	-72.885	1229.4	0.9	24.3	0.2	6.7	5.2	62.6	0.1
*(34) Lapland Trail Creek**	44.7806	-72.873	875.4	0.7	1.6	0.1	6.6	2.3	87.7	0.9
(35) Black Creek Tributary	44.7879	-72.865	1498.7	1.4	22.4	0.1	6.1	7.8	61.9	0.2
*(36) South Franklin Creek**	44.9077	-72.86	685	1	37.5	0.2	1.7	11.7	47.6	0.2
(37) Paige Brook	44.7813	-72.858	3198.3	1.6	20	0.1	9.5	5.4	62.6	0.7
*(38) Cassel Creek**	44.7649	-72.853	1513	1.1	10.4	0.4	4.9	4.7	78.1	0.4
*(39) Lost Nation Creek**	44.7517	-72.843	607.5	0.4	2.8	0	2.3	2.9	91.1	0.5
*(40) Right of Way Creek**	44.9061	-72.841	596.8	0.4	9.5	0.1	9	4.1	76.8	0
(41) Kings Hill Brook	44.7461	-72.837	3865.1	1.3	9.9	0.3	5.4	3.2	79.6	0.3
*(42) Swamp 17 Creek**	44.8947	-72.835	523.2	0.8	22.6	0	1.2	2	73.2	0.1
*(43) Colton Creek**	44.9036	-72.833	937.6	1.9	35.2	0.9	6.3	7.1	48.5	0.1
*(44) Duffy Hill Brook**	44.8906	-72.824	635.1	2.1	12.1	0	1.5	7.6	76.6	0.1
*(45) Collins Brook**	44.9728	-72.811	1017.8	1.3	29.7	0.1	18.3	4.4	46	0.2
*(46) Bordoville Brook**	44.8453	-72.806	728.3	2.2	10.7	0.1	4.6	7.5	74.2	0.8
*(47) Chester A Arthur Creek**	44.8505	-72.804	993.7	0.9	8.5	0.5	4.3	2.7	82.9	0.2
*(48) Saint Pierres Creek**	44.8645	-72.804	967.3	2.4	20.3	0.7	4.7	4	67.7	0.3
*(49) Hennessey Creek**	44.8353	-72.803	601.7	0.6	4.7	0	8	3.1	82.8	0.9
(50) Mineral Brook	44.9762	-72.799	2264.3	2.5	34.1	1.5	14.5	6	40.9	0.5
(51) Missisquoi River Trib #42	44.9021	-72.798	962.2	1.5	43.1	0	4	3.7	47.6	0.1
*(52) South Skunk Creek**	44.9893	-72.792	640.5	1.8	40.5	0.2	13.5	4.8	39.2	0
*(53) Stonehouse Brook**	44.905	-72.786	864.4	1.6	30.1	0	5.5	3.7	59	0
*(54) North Skunk Creek**	44.9942	-72.782	5089.7	1.9	35.8	0.8	15.1	5.3	40.7	0.3
*(55) Ovitts Creek**	44.8684	-72.777	729.6	1.8	31.3	0.7	9.7	6.1	50.4	0.1
*(56) Trans Line Creek**	44.9166	-72.768	491.1	0.7	12.8	0.3	16.6	9.7	59.9	0.1
(57) Ross Brook	44.8144	-72.764	851.7	1	8.5	0.2	5.4	3.1	81.7	0.2
*(58) Boston Market Brook**	44.8638	-72.763	1284.3	2.2	27.5	0.3	2.9	8.5	58.4	0.2
*(59) Witchcraft Creek**	44.8252	-72.756	2769.2	1	9.4	0.3	4	3.4	81.6	0.2
*(60) Gervais Creek**	44.9192	-72.745	819.3	1	35.9	0.9	9.2	5.4	47.4	0.2
(61) Beaver Meadow Brook	44.8543	-72.744	4934.1	0.8	7.1	0.2	3.6	3.3	83.8	1.2
(62) Trout River	44.9298	-72.697	726.8	1.1	4.5	0.1	1.7	3.8	88.6	0.1
*(63) Richfords Creek**	44.9855	-72.696	510.4	1.1	38.5	NA	12.7	3.4	44.3	0.1
*(64) Pleasent Creek**	44.9872	-72.695	572.8	1.2	25.8	0.4	19.1	4.4	49	0.1

Name, Map ID	Latitude	Longitude	Acres	Developed	Agriculture	Other	Wetlands	Herbaceous	Forest	Water
*(65) Guillmettes Pond Outlet**	44.9612	-72.692	725.4	1.4	2.5	1.2	2.4	5.9	84.9	1.7
*(66) Prive Hill Creek**	44.9243	-72.679	1065.6	1.1	7.5	0	1.5	6.5	83.3	0.1
*(67) Wightman Hill Creek**	44.917	-72.672	3341.1	1.5	12.2	1	3.4	4.7	76.6	0.5
*(68) Longley Brook**	44.9086	-72.665	629.3	1.5	18.7	0.1	1.2	5.8	72.6	0.2
(69) West Hill Brook	44.9022	-72.649	7775.7	1.1	2	0.4	4.2	3.2	88.8	0.3
*(70) Corliss Creek**	44.9986	-72.621	436.9	1.1	10.1	0	3.2	4.3	81.3	0.1
(71) Stanhope Brook	44.9961	-72.615	4399	0.2	0.8	0.1	2.1	0.8	95.9	0
(72) Lower South Branch Trout River	44.8777	-72.612	11839.4	0.9	4.2	0.2	2.8	2.7	88.9	0.3
*(73) Sundell Creek**	44.8394	-72.611	1219.2	0.6	1.8	0.1	0.7	2.3	94.2	0.2
*(74) Trib #1 to South Branch Trout River**	44.8735	-72.611	942	0	2.3	0.1	3.6	1.3	92.6	0.1
*(75) Upper South Branch Trout River**	44.8291	-72.611	2611	0.6	0.4	0	2.7	1.7	94.3	0.2
*(76) Pacific Brook**	44.8292	-72.611	2217.1	0.3	1.4	0.5	0.5	1.9	95.4	0.1
(77) Lucas Creek	45.0107	-72.588	6063.4	0.8	2.5	0.9	2.4	3.1	90.2	0.1
(78) Lockwood Brook	44.7751	-72.51	2292	0.2	0.5	0.3	2.8	1.3	94.9	0
*(79) Newton Creek**	44.779	-72.502	942.7	0.7	0.8	1.3	16.7	3.6	76.4	0.4
*(80) Pages Brook**	44.7649	-72.461	607.6	0.8	1.8	0.4	4.4	3.5	89	0.1
*(81) Hazen Notch Creek**	44.8108	-72.455	4214.2	0.9	3.2	0.4	5.9	2.3	86.7	0.8
*(82) Buck Hill Brook**	44.8181	-72.452	833.4	1.6	17	2.5	6.1	4.2	68.4	0.2
*(83) McAllister Creek**	44.7973	-72.45	888.5	2.7	15.8	0.1	11.2	4.7	65.4	0.1
*(84) Steven Mill Creek**	44.9496	-72.442	2637.3	0.8	1.7	0.2	3.8	2.1	91.4	0
(85) South Le Clair Brook	44.8246	-72.439	784.8	1.9	12.2	0.1	7.3	6.6	71.6	0.4
(86) Le Clair Brook	44.8249	-72.439	1959.9	1.5	19.4	0.9	10.5	5.3	62.1	0.3
(87) Snider Brook	44.8355	-72.436	3211.2	0.6	4.5	1.2	11	3.5	79.1	0.1
(88) Crook Brook	44.9614	-72.434	2452.6	1.7	3.7	0.6	8.8	3.8	81.3	0.2
*(89) Flat Creek**	44.9628	-72.433	765.4	2.5	7	0.6	24.3	5.8	59.2	0.6
*(90) Creek 242**	44.9573	-72.432	880.5	2.5	10	0.1	14	6.7	66.2	0.6
*(91) Carters Ridge Creek**	44.8461	-72.425	594.6	0.4	4.8	0.1	27.4	1.9	64.9	0.4
(92) Lilly Branch	44.8771	-72.41	1487.9	0.6	10.8	1.1	10.6	3.3	73.4	0.2
*(93) Creek 105**	44.9593	-72.402	1333	1	21.1	1.6	35.6	3	36.8	0.9
(94) Buybee Brook	44.9419	-72.402	1020.1	1.5	16.4	0.9	14	5.4	61.1	0.7
*(95) South River Creek**	44.9554	-72.395	1078	1.4	15.3	1.1	10.3	5.9	65.9	0.1
*(96) Old Irone Mine Creek**	44.9129	-72.393	902	1.4	28.1	2.4	6	4.6	57.3	0.2
*(97) North River Creek**	44.9613	-72.39	541.4	1.8	27	4.3	16	8.1	42.5	0.4
*(98) Troy Outlet**	44.9844	-72.39	526.3	0.9	18.9	0.5	17.9	2.8	58.8	0.1

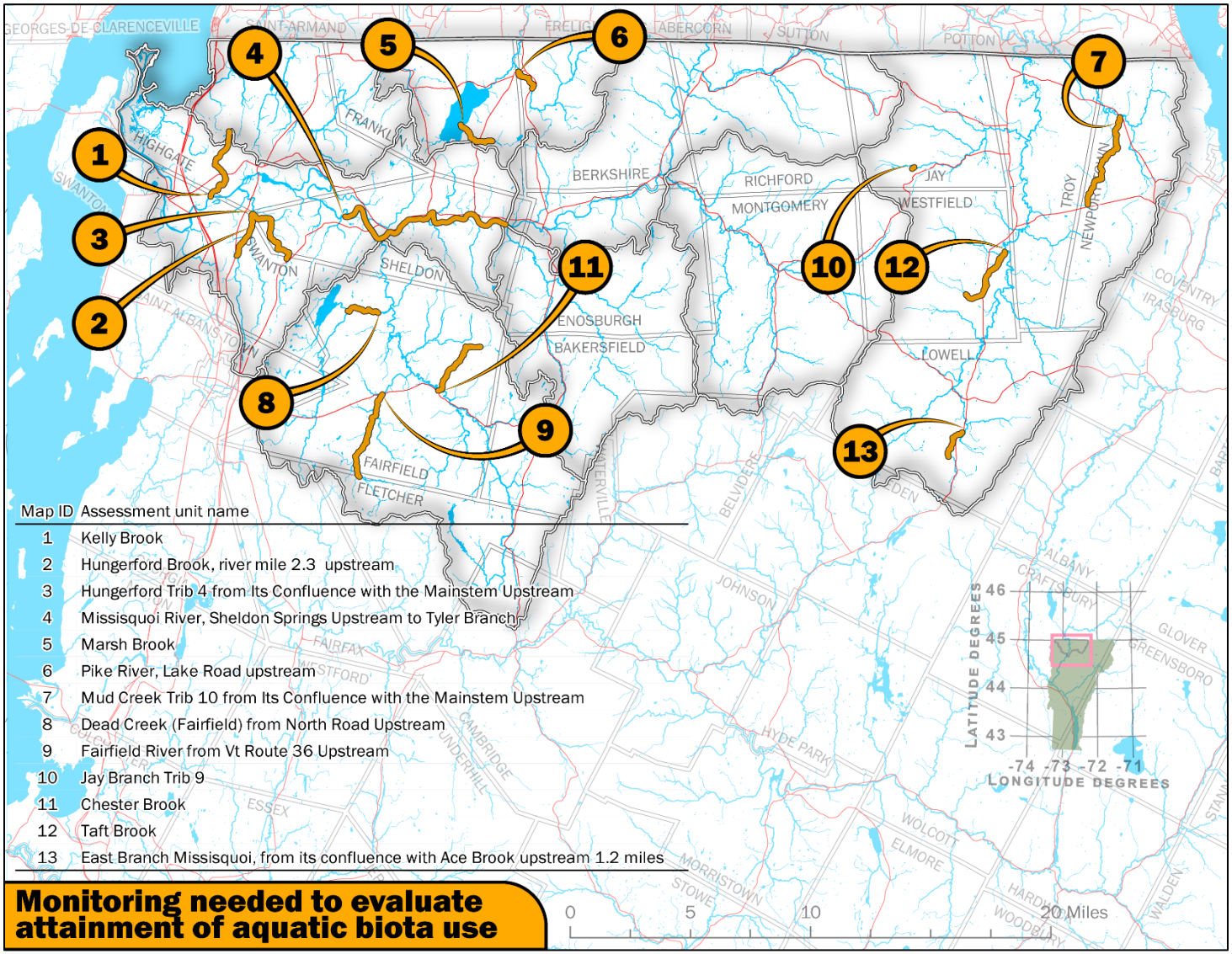

Figure 22 Map of rivers that require more monitoring to evaluate attainment of Aquatic Biota use. Unlike the streams mentioned above with no biological monitoring data, the streams here have limited biomonitoring data that indicates fair or poor condition do have a lot of data but are in an intermediate state, going back and forth between passing and failing.

Table 22 Table of rivers that require more monitoring to evaluate attainment of aquatic biota use. Map IDs correspond to the map above.

Map ID	Assessment unit name	Pollutant	Problem
1	Kelly Brook	NUTRIENTS	Agricultural runoff
2	Hungerford Brook, river mile 2.3 upstream	NUTRIENTS, SEDIMENTATION/SILTATION	Agricultural activities
3	Hungerford Trib 4 from Its Confluence with the Mainstem Upstream	NUTRIENTS, SEDIMENTATION/SILTATION	Runoff from agricultural lands
4	Missisquoi River, Sheldon Springs Upstream to Tyler Branch	TURBIDITY, NUTRIENTS, SEDIMENTATION/SILTATION, TEMPERATURE	Agriculture, lack of riparian vegetation, and stream bank erosion
5	Marsh Brook	Unknown	Agriculture, shift in macroinvertebrate functional groups
6	Pike River, Lake Road upstream	NUTRIENTS, TEMPERATURE	Agriculture, lack of riparian vegetation
7	Mud Creek Trib 10 from Its Confluence with the Mainstem Upstream	NUTRIENTS, TEMPERATURE	Runoff from agricultural lands, lack of woody riparian vegetation
8	Dead Creek (Fairfield) from North Road Upstream	TEMPERATURE	Agriculture, lack of riparian vegetation
9	Fairfield River from Vt Route 36 Upstream	NUTRIENTS, SEDIMENTATION/SILTATION	Runoff from agricultural lands, lack of woody riparian vegetation
10	Jay Branch Trib 9	SEDIMENTATION/SILTATION, CHLORIDE	Road runoff
11	Chester Brook	Unknown	Failing fish community
12	Taft Brook	NUTRIENTS, SEDIMENTATION/SILTATION	Failing macroinvertebrate community
13	East Branch Missisquoi, from its confluence with Ace Brook upstream 1.2 miles	SEDIMENTATION/SILTATION	Potential issues with gravel operations causing borderline macroinvertebrate community and unstable fish community.

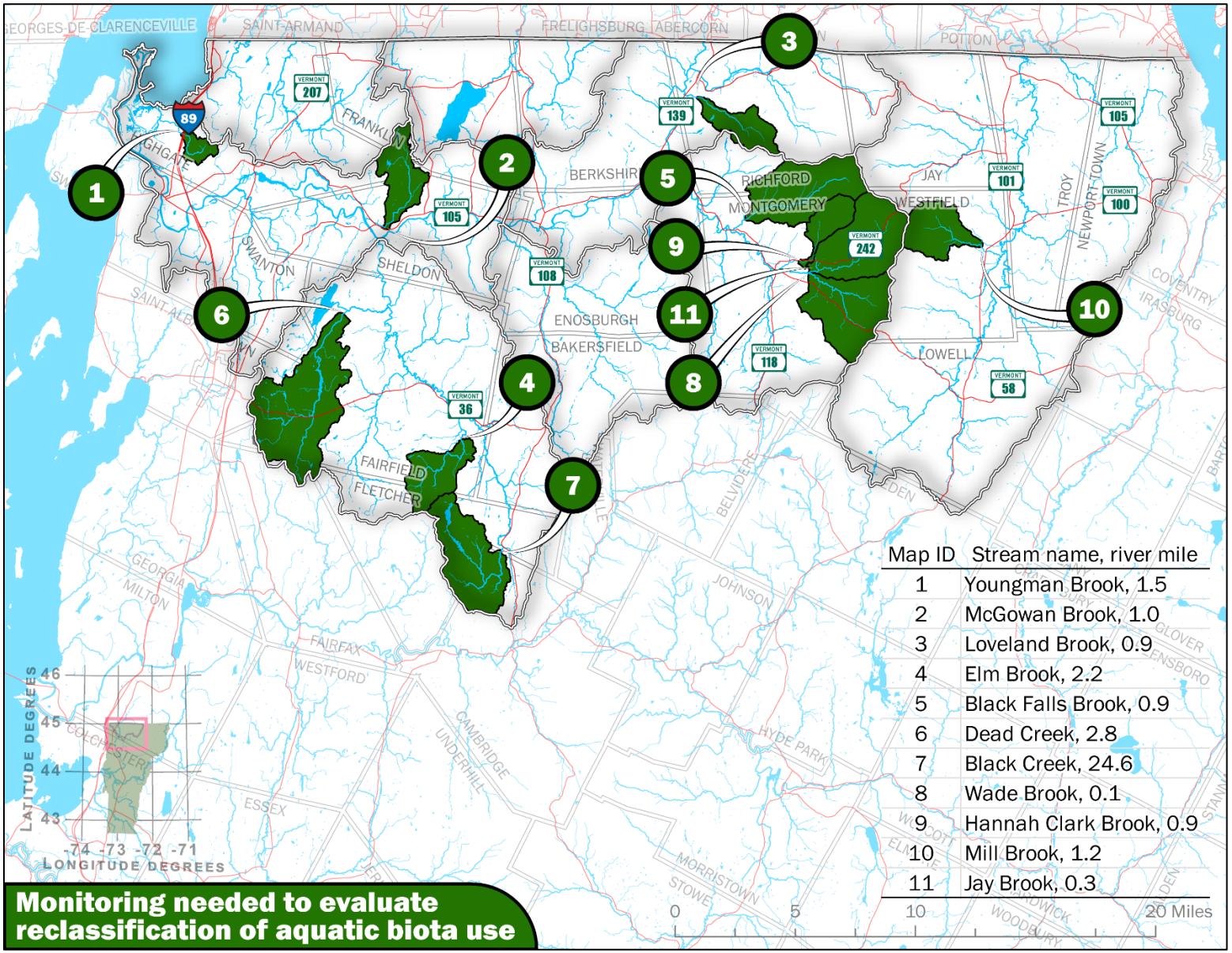

Figure 23 Map of rivers that require more monitoring to assess condition relative to A(1) or B(1) criteria for Aquatic Biota use. The streams have biological monitoring data between 2012-2022 which suggests Very Good or Excellent. Additional data may be necessary to assess if it meets A(1) or B(1) criteria for Aquatic Biota use.

Table 23 Table of rivers that require more monitoring to evaluate reclassification candidacy. Map IDs correspond with the map above and the years associated with each community field represent additional data requirements for reclassification candidacy verification.

Map ID	Name	Macroinvertebrate	Fish
1	Youngman Brook, 1.5	2025, 2031	2025, 2031
2	McGowan Brook, 1.0	2025, 2031	2025, 2031
3	Loveland Brook, 0.9	2025, 2031	2025, 2031
4	Elm Brook, 2.2	2025, 2031	2025, 2031
5	Black Falls Brook, 0.9	2025	2025
6	Dead Creek, 2.8	2029	2029
7	Black Creek, 24.6	2025, 2031	2025, 2031
8	Wade Brook, 0.1	2025, 2031	2025, 2031
9	Hannah Clark Brook, 0.9	2025	2025
10	Mill Brook, 1.2	2025, 2031	2025, 2031
11	Jay Brook, 0.3	2025, 2031	2025, 2031

Wetlands

The purpose of the Wetland Bioassessment and Monitoring Program ("Program") is to build a pertinent and practical program to assess the biological integrity and ecological condition of Vermont's wetlands. The Program has adopted the EPA's wetland monitoring methodology and is organized into three levels. Level 1 assessments are performed through desktop review and rely on coarse landscape-scale inventory information. Level 2 surveys are a "rapid assessment" at the specific wetland scale and use simple and quick protocols to collect data. Level 2 protocols are calibrated and validated by more intensive assessments known as Level 3, which are rigorous biological assessments that derive multi-metric indices. The Program conducts vegetation surveys to calculate biological metrics with a strong focus on the Coefficient of Conservatism score, which is a numeric scale from 0-10 assigned to each plant species which measures its tolerance and sensitivity to disturbance (Link to latest Bioassessment Report).

Table 23. Number and type of level 3 wetland assessments conducted across Basin 6. NWCA (National Wetland Condition Assessment). Heritage (Natural Heritage methodology).

Boundless Plot	Species List	Heritage	Wetlands Transect
8	6	6	14

Vermont Rapid Assessment Method (VRAM)

The Level 2 assessment is conducted using the Vermont Rapid Assessment Method (VRAM), which is composed of 6 qualitative metrics used to collect data on the wetland's function, value, and condition. These metrics include wetland area, buffers, hydrology, habitat, special wetland status, and plant communities. It generates a quality score on a scale of 0-100, where a higher score equates to better wetland quality. From the VRAM information, condition indexes can be calculated that offer additional information to help evaluate human stressor impacts on the wetland and surrounding landscape or evaluate wetland restoration success.

Total VRAM scores (function and condition) are less comparable between wetlands due to the unique characteristics of a given wetland, such as the presence of a rare or threatened plant species or its size. Smaller wetlands generally receive less points than larger wetlands. Therefore, a lower total VRAM score may still demonstrate that a particular wetland is in reference or excellent condition with significant functions present. Function scores between wetlands are also not directly comparable as these scores do not relate specifically to wetland condition nor reflect whether one wetland is exemplary for one or more functions. Condition scores do provide relative comparison of wetland health between wetlands. However, it should be noted that sampling locations are not randomized and conclusions on area-wide wetland health, based on condition scores or total VRAM scores within the basin, cannot be determined at this time.

Additionally, the Program is currently unable to report on basin-wide wetland conditions and trends, impairments, or altered wetlands. The following information provides an overview of the various monitoring, assessment, and mapping objectives the Program is focused on.

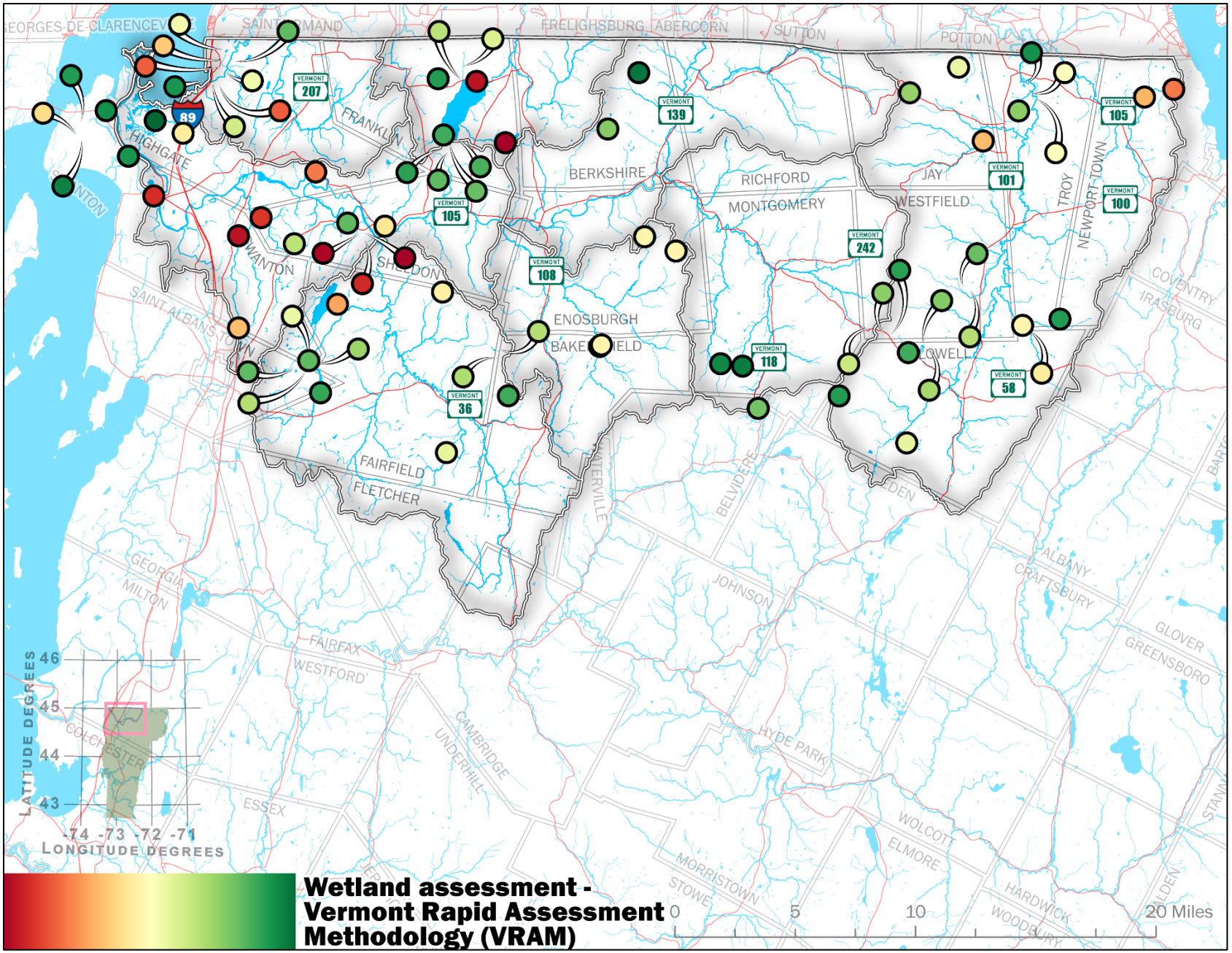

Figure 24. VRAM scores Basin 6 (North). The red to green symbology illustrates the relative wetland condition amongst VRAMs.

Table 24 Number of VRAMs conducted in Basin 6, summarized by HUC12 sub-basins. Sub basin size in acres included for reference.

Name	*Sub basin acres*	*VRAM Count*
Black Creek	5537.4	12
Pike River	2318.5	10
Rock River	3023.4	8
Tributaries to Lower Missisquoi	9429.3	19
Tributaries to Mid Missisquoi	3702.4	2
Trout River	1492.5	5
Tyler Branch	1625	4
Upper Missisquoi River	7931	22

Wetland restoration monitoring

In 2017, the Program initiated a pilot project of monitoring restoration sites and associated reference sites. The project focused on sites with (1) recent restoration work; and (2) pre-restoration sites, with the intent to return to the sites as restoration progresses. Monitoring includes Level III assessments, Level II assessments using the VRAM, and tracking wetland restoration success using a metric called the Restoration Indicators of Success (RIS). This metric generates a numeric score calculated by summing the VRAM scores of metrics specifically relevant to and affected by restoration success, such as habitat development and alteration, presence of high-value habitat features, and intactness of hydrologic regime. To learn more about the RIS, and preliminary findings of the restoration monitoring project, click here: (link to RIS and Restoration Report).

Table 25 Monitored wetland restoration sites in basin 6.

Map ID	Plots	Latitude	Longitude
1	Swanton Village Meadow	44.8959	-73.0621
2	Marsh Brook Franklin Restoration Site	44.9534	-72.8383
3	Rock River Restoration Site	44.9876	-73.0782
4	Rock River Reference	44.9883	-73.0819
5	Carmi Farm Field	44.9898	-72.8609
6	Lake Carmi Access Wetland	44.9907	-72.8722

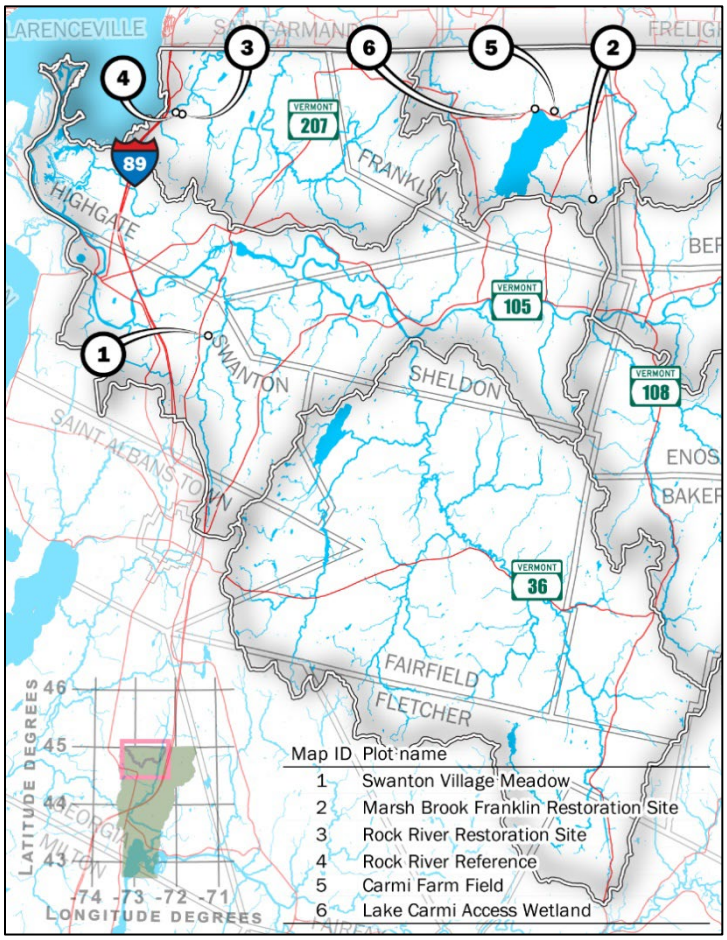

Figure 25 Monitored wetland restoration sites in basin 3

Class I wetlands

Class I wetlands are exceptional or irreplaceable in their contribution to Vermont's natural heritage. They provide unmatched environmental functions and values and therefore merit the highest level of protection. Wetlands meeting Class I criteria and sub-criteria can be petitioned for reclassification from Class II to Class I by the public. These criteria evaluate the wetland's size, location, surrounding landscape, condition, and contribution to the functions and values identified by the State of Vermont.

There are no Class I wetlands in Basin 6.

Class I candidate wetlands are those where enough data has been collected to support a petition for reclassification. An important note is there are likely to be multiple wetlands in the basin that meet Class I criteria and have not been proposed or have had a complete Class I assessment conducted. For more information on this process see this webpage: https://dec.vermont.gov/watershed/wetlands/class1wetlands

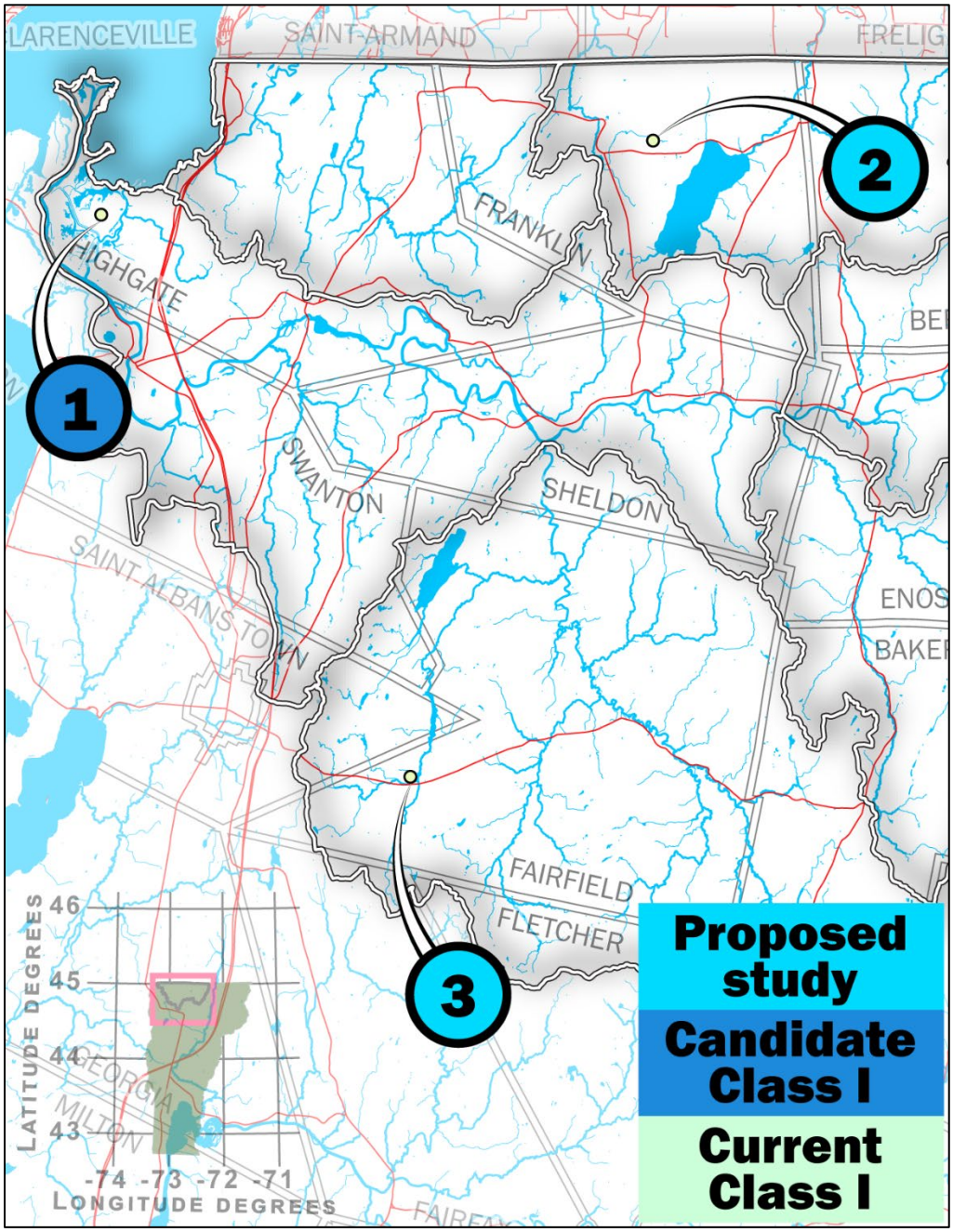

Figure 26 Class I wetland candidates.

Table 26 Class I wetland candidates.

Map ID	*Latitude*	*Longitude*	*Wetland name*	*Category*	*Towns*
1	42.9793	-72.5206	Missisquoi Delta	Candidate	Highgate
2	44.9911	-72.8963	Franklin Bog	Proposed for Study	Franklin
3	43.1237	-72.6269	Fairfield Swamp	Proposed for Study	Fairfield, Saint Albans Town

Wetland mapping and inventory

The Vermont Wetlands program is currently in the process of working with contractors and federal agencies to update wetland mapping across the state. This will provide essential data as much of the current mapping is out of date and significantly under maps some types of wetlands such as seepage forests and softwood swamps. New mapping will gradually be made available in the Vermont Significant Wetlands Inventory layer over the next few years, with some basins updated sooner than others. This process has been completed for Missisquoi in 2023.